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# Rebooting Psychotherapy Research and Practice to Reduce the Burden of Mental Illness

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## Abstract

Psychological interventions to treat mental health issues have developed remarkably in the past few decades. Yet this progress often neglects a central goal—namely, to reduce the burden of mental illness and related conditions. The need for psychological services is enormous, and only a small proportion of individuals in need actually receive treatment. Individual psychotherapy, the dominant model of treatment delivery, is not likely to be able to meet this need. Despite advances, mental health professionals are not likely to reduce the prevalence, incidence, and burden of mental illness without a major shift in intervention research and clinical practice. A portfolio of models of delivery will be needed. We illustrate various models of delivery to convey opportunities provided by technology, special settings and nontraditional service providers, self-help interventions, and the media. Decreasing the burden of mental illness also will depend on integrating prevention and treatment, developing assessment and a national database for monitoring mental illness and its burdens, considering contextual issues that influence delivery of treatment, and addressing potential tensions within the mental health professions. Finally, opportunities for multidisciplinary collaborations are discussed as key considerations for reducing the burden of mental illness.

## Keywords

psychological interventions, reducing the burden of mental illness

Psychological interventions to treat clinical dysfunction have advanced remarkably in the past few decades. The progress is evident in many ways. First, the quantity of controlled treatment outcome studies has proliferated. Empirical studies of therapy for children, adolescents, and adults number well into the thousands. Many journals feature therapy outcome research as their primary thrust so the flow of research continues. Second, the quality of research has continued to improve as well. The use of randomized controlled trials (RCTs) is recognized as the fundamental design, but many other methodological features (e.g., the use of treatment manuals, assessment of clinical significance of change, evaluation of follow-up) have set the bar high for treatment outcome studies. Third, and perhaps most salient, has been the delineation of evidence-based treatments (EBTs; i.e., interventions with strong evidence on their behalf). EBTs are available for many psychological dysfunctions for children, adolescents, and adults (e.g., Nathan & Gorman, 2007; Weisz & Kazdin, 2010). EBTs continue to emerge and reflect palpable progress from scientific research.

The remarkable progress has left in the background a key issue that is a major impetus for developing psychological

interventions—namely, the goal of decreasing rates of mental illness and improving psychosocial functioning on a large scale (i.e., in society). Psychological treatments have many purposes, but key among them is to alleviate mental illnesses and related sources of dysfunction. A central thesis of this article is that, despite advances in research, mental health professionals may have little success in decreasing the prevalence and incidence of mental illness without a major shift and expansion of intervention research and clinical practice. The article focuses on models of treatment delivery and what is needed to reduce the burden. By *burden*, we refer to the personal, social, and monetary costs associated with impairment. Within the term *mental illness*, we include psychiatric disorders and also social, cognitive, emotional, and behavioral sources of impairment or disability.

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We begin by highlighting the burden and cost of mental illness and associated psychological sources of dysfunction. We then discuss why advances in current treatment are not likely to have broad impact and reach most people in need. We highlight individual psychotherapy as a point of departure because it serves as the dominant model of treatment delivery and is emphasized in treatment research, clinical practice, and training in the mental health professions. By *model of delivery*, we refer to multiple characteristics of how an intervention is administered, by whom, under what conditions, and in what contexts. Psychotherapy as a model usually is delivered to one person at a time (or couple, family, or in a small group) by a trained mental health professional at a health care or mental health service facility or private office. Although there are many variations of therapy (techniques), the model of delivery is more narrowly restricted among them. Yet emphasis on this one delivery model leaves enormous gaps that must be addressed to reduce the burden of mental illness.

In addition, this article highlights research on the burden of mental illness and the current treatment model as steps toward elaborating changes that are needed for providing treatment. We illustrate several models of delivery that expand on the model of individual psychotherapy. The burden of mental illness can be reduced by expanding models of delivery. At the same time, reducing the burden raises other considerations including the integration of prevention and treatment, the need for improved assessment to monitor psychological dysfunction nationwide, contextual factors that influence health care, professional tensions within clinical psychology, and important opportunities for collaborating with other disciplines.

## Reducing the Burden of Mental Illness and Related Conditions

The challenge for psychological interventions is to help reduce the burden of mental illness and related conditions both at the personal and societal level.<sup>1</sup> Four interrelated considerations convey why diverse treatment delivery models are needed.

### Rate of Mental Illness

Consider the rate of psychological dysfunction. Not all sources of psychological impairment are codified by current classification systems of psychiatric disorders (*Diagnostic and Statistical Manual of Mental Disorders, DSM-IV-TR*; American Psychiatric Association, 2000; *International Classification of Diseases, ICD-10*; World Health Organization, 2007). Impairment can result from many sources (e.g., stress, relationship problems) beyond those included in diagnostic systems. Also, many disorders are on a spectrum indicating continuity of dysfunction. For example, several symptoms of depression are required to meet criteria for a *DSM* diagnosis. However, just failing to meet the criteria (e.g., by a symptom or duration requirement) is still associated with dysfunction or impairment, commensurate with the discrepancy from meeting the criteria. Subthreshold dysfunction leads to prevalence rates that

underestimate the burden of dysfunction. Nevertheless, data on psychiatric disorders, albeit conservative, are instructive in illustrating the scope of psychological dysfunction.

Lifetime prevalence rates reveal that mental illness (meeting criteria for a psychiatric disorder) is relatively common, not only within the United States, but also within many countries worldwide. A series of recent surveys from the World Health Organization assessing the global burden of mental illness found a lifetime *DSM-IV* disorder prevalence within its 17 participating countries of 12.0% to 47.4%, with the highest lifetime prevalence estimate in the United States (Kessler et al., 2009). The same surveys reported the United States to have the highest 12-month *DSM-IV* disorder prevalence, with a range of 6.0% to 27.0% for all 17 countries. Summarizing the U.S. data only, approximately 50% of the population meets criteria for one or more psychiatric disorders in their lifetimes, and approximately 25% of the population meets criteria in any given year (Kessler & Wang, 2008).

The rates of dysfunction vary as a function of culture, ethnicity, immigrant status within a given ethnicity, geographical location, and socioeconomic status, among other factors (e.g., Alegría et al., 2008). These variations and differences are important in developing interventions. For present purposes, we merely wish to convey that psychiatric disorders are prevalent. The estimates are likely to be conservative because they have required meeting diagnostic criteria and exclude those who do not quite meet criteria but are close enough to make the distinction of meeting or not meeting the criteria minor.

### Cost of Mental Illness

The costs of mental illness are high. Although there is no single, agreed upon figure or set of figures of those costs, well-documented examples in specific problem domains convey the point. For example, alcoholism and substance abuse, which affects more than 20 million Americans and is the most prevalent mental disorder in the United States, costs approximately \$500 billion annually (Jason & Ferrari, 2010). The main costs include medical and criminal justice costs, accidents, and loss of earnings. For anxiety disorders, annual health-care expenditures in the United States are approximately \$42 billion (Greenberg et al., 1999). The costs encompass health-care utilization, including medical and psychiatric treatment, and decreased work productivity (see also H. Harwood, Fountain, & Livermore, 1998).

Reductions in annual earnings also are associated with the diagnosis of a mental illness. Individuals diagnosed with a *DSM-IV* mental disorder earn, on average, approximately \$16,000 less than their control counterparts annually. This results in a total reduction of \$193.2 billion in personal earnings nationally in 1 year (Kessler et al., 2008). A single episode of major depressive disorder is associated with an average of more than 5 weeks of lost productivity per worker, resulting in an annual capital loss of \$36 billion to employers (Kessler et al., 2006).

Cost extends beyond the fiscal burden; personal impairment and subjective experience are not trivial. In one series of

national interviews, participants reported the number of days in the past month in which they were unable to perform their usual daily tasks due to problems because of physical or emotional health. Mental disorders were associated with more than half of the role-disability days, and depression had one of the largest effects on disability of all conditions (Merikangas et al., 2007). Mental disorders are more impairing than common chronic medical disorders, with particularly greater impairment in the domains of home, social, and close relationship functioning (Druss et al., 2009). These findings document the importance of the loss of productivity due to mental illness and also reflect the widespread interpersonal difficulties. These psychosocial sources of dysfunction that likewise lead to impairment, suffering, and costs to individuals as well as to society are more difficult to capture on a national level, but they are an important target for interventions to reduce the burden of mental illness.

### **People in Need of Services**

A vital aspect to reducing the burden of mental illness is the availability of interventions for those most in need of services. Recent years have seen an increase in the rate of people in need receiving treatment in the United States, with 20.3% of individuals suffering from a disorder receiving treatment between 1990 and 1992 and 32.9% receiving treatment between 2001 and 2003 (no difference was found in rates of prevalence between the two time points; Kessler et al., 2005). Even so, the majority of individuals with a diagnosable mental disorder are not receiving treatment. Ethnic disparities with respect to access to mental-health care among those in need are enormous. For example, African Americans are less likely to have access to services than are European Americans (12.5 vs. 25.4%), and Hispanic Americans are less likely to have adequate care than are European Americans (10.7 versus 22.7%; Wells, Klap, Koike, & Sherbourne, 2001). These are illustrations from a much larger literature on disparities in mental health care delivery among individuals of minority groups (e.g., see [www.mentalhealthcommission.gov/reports/FinalReport/FullReport-04.htm](http://www.mentalhealthcommission.gov/reports/FinalReport/FullReport-04.htm)). The lack of available services for most people and systematic disparities among those services have direct implications for models of treatment delivery. Interventions are needed that can reach many more people, but also with particular attention to select subpopulations.

### **People Providing Services**

The problem of too few people receiving services and of groups being particularly deprived of such services might be conceived as a “person-power problem” in the mental health field. To oversimplify the argument, maybe more people are needed to provide the usual services. Three points convey why more providers alone may not be sufficient. First, the person-power problem stems in part from the geographical distribution of existing mental health professionals. The concentration of psychologists, psychiatrists, and clinical social workers in the United States is the greatest in highly

populated, affluent urban areas and in cities with major universities (Health Resources and Services Administration, 2010; J.M. Richards & Gottfredson, 1978). Thus, mental health professionals are not distributed advantageously to reach large swaths of people in need (e.g., rural areas, small towns).

Second, mental health professionals are unlikely to be able to reach the vast majority in need. In the United States, there are approximately 700,000 mental health professionals who provide services (Hoge et al., 2007). As we mentioned, estimates of prevalence indicate that approximately 25% of the population has at least one psychiatric disorder in a given year. With a U.S. population exceeding 300 million; 25% is approximately 75 million people. It is not necessary for these estimates to be precise to see that the number of individuals who can provide treatment—at least with the current dominant model of delivery—could not begin to reach the number of those in need. Doubling the work force might have little discernible impact given the number of individuals requiring services.

Third, it is not only the distribution and number but the profile of mental health professionals. Too few mental health professionals reflect the cultural and ethnic characteristics of those in need of care. For example, trends in ethnic minority representation in clinical psychology (e.g., doctoral enrollments and recipients and graduate department faculty) over two decades suggest that the proportions of ethnic minorities in psychology do not show comparable growth relative to that of the U.S. ethnic minority population growth (e.g., see Commission on Ethnic Minority Recruitment, Retention, and Training, 2008). Approximately 20% of doctoral degrees in psychology and current enrollees in psychology graduate training programs are of minority status, and approximately 6% of psychology faculty are of minority status (African American, Asian American, Hispanic American, Native American). The proportion of the U.S. population that comprises minorities, projected to be 50% by 2060, is accelerating at a higher rate than trainees in their respective groups. Thus, the population of ethnic minorities in need of mental health services will increase at a greater rate than will the availability of ethnically matching professionals. Although treatments can be effective where there is not an ethnic match of therapist and client, in some cases that cultural component influences outcome (Griner & Smith, 2006; Miranda et al., 2005). Even if an ethnic match is not needed for treatment to work, it can nevertheless present a barrier for the potential client who is considering treatment. Ethnicity and culture are not the only mismatch. Other groups based on geography (e.g., individuals living in rural areas) or select populations (e.g., the elderly) reflect a mismatch with a paucity of available resources and a plethora of need for mental health services (e.g., Hinrichsen, 2010; Institute of Medicine, 2008).

In light of the previous considerations, the inability to reach most people in need of services is not simply (or only) a person-power issue. Many of those in need of services cannot be reached for a variety of reasons (e.g., access, perceived and genuine barriers in obtaining treatment, insurance, rural areas), but one of them is our own view as mental health professionals

regarding how treatment should be delivered. Invariably, more help is welcome. But, given the emphases of the current model of delivery, that alone is not likely to provide an increment of reduction on the burden of mental illness.

## Individual Psychotherapy in Relation to the Burden

Many interventions will be needed to reduce the burden of mental illness and other facets of impairment. We begin with psychotherapy research for several reasons.<sup>2</sup> First, there are many goals of psychotherapy, but salient among them is the treatment or amelioration of psychiatric disorders; social, emotional, cognitive, and behavioral problems; and stress (e.g., Dickerson & Lehman, 2006; Mahrer, 1986; Weissman, Markowitz, & Klerman, 2000). Thus, psychotherapy is a viable intervention for addressing significant mental health problems (e.g., anxiety, depression, bipolar disorder) in addition to other sources of impairment (e.g., stress). Second, psychotherapy research has progressed remarkably. As we mentioned, the emergence of EBTs is a particularly important advance. Generally, EBTs refer to those interventions that have carefully controlled research on their behalf. RCTs, careful delineation of the client sample, specification of treatment, and replication of the results by an independent investigator or team are among the commonly used criteria. Third, psychotherapy is a dominant model of delivering psychological services. By *model of delivery*, we refer to how the intervention is presented or provided. In this case, we refer to the dominance of individual, one-to-one therapy with a client (child or adult), family, or group (e.g., 8–10 clients). Psychotherapy plays a role in reducing the personal and social burden of mental illness. But the role it does play draws stark attention to what is missing if the burden of dysfunction is to be significantly reduced among those in need.

It is useful to highlight briefly the model of delivery of psychotherapy in historical context. That context conveys how the model has tacitly continued to dominate in therapy research and practice. Consider the enormous impact of psychoanalysis on the delivery of psychological treatment. For present purposes, three facets of psychoanalysis and its variations can be distinguished. First is the theory or substantive foci of problem development (e.g., related to psychosexual stages of development, superego, and variants) and of treatment (e.g., addressing transference). Second are the methodological features used in early work to support the key tenets. The anecdotal case study (e.g., Anna O., Dora, Little Hans) was relied on heavily. Third was the model of delivery of treatment, namely, one-to-one individual patient care, all flowing from a medical-patient care model. Psychoanalysis was not the first one-to-one psychosocial intervention (e.g., mesmerism, hypnotism), but it provided a prototype from which subsequent psychotherapies (and *New Yorker* cartoons of them) followed.

The contemporary history of psychotherapy research reflects the continual development and changes in substantive views that explain the onset of clinical disorders and the

procedures required to effect therapeutic change. Many familiar examples within psychoanalysis and its variants (e.g., Jung, Kohut) and also from other views (e.g., self-theory of Rogers, reciprocal inhibition of Wolpe, cognitive therapy of Beck) and shifts in orientation (e.g., positive psychology of Seligman) illustrate the dynamic (not “psycho”) nature of the field. Also, methodological advances have raised the bar for all treatment evaluation to include RCTs and increasingly more stringent requirements for how intervention studies must be conducted and reported (e.g., Consolidated Standards of Reporting Trials—CONSORT; Moher, Schulz, & Altman, 2001).<sup>3</sup>

The third component, the model of one-to-one treatment, continues to dominate even as theories about the appropriate intervention focus (e.g., problem-solving strategies, mindfulness, and self-agency) have proliferated. The departures (e.g., treating couples, families) retain the focus on small individual units. The majority of EBTs retain this model of delivering treatment (Nathan & Gorman, 2007; Weisz & Kazdin, 2010). Also, the model dominates training in clinical psychology, social work, and psychiatry. In clinical psychology, for example, accreditation of graduate programs emphasizes clinical hours of treatment in individual therapy in graduate school followed by an internship experience. Treatment of groups (e.g., 8–10) and families are counted as well, but in relation to the focus of this article, delivering treatment by a mental health professional in person to small individual units are of the same ilk, namely, treatments with a very restricted reach.

Our comments are not a criticism of the model of individual therapy. One-to-one therapy will always have a place; individual crises and challenges in life are invariably at that level. Also, individual therapy contributes to the overall goal of reducing the burden of mental illness in at least three ways. First, it serves a small number of individuals with effective procedures, and that places it firmly in the portfolio of models of treatment delivery. Second, many of the scientific principles and processes (e.g., emotional memories, extinction, cognition) that serve as the underpinnings of individual therapy as well as the techniques themselves may inform other models of delivery. Third, some therapy techniques (as noted later) might be delivered in multiple ways, so the “same” treatment or very close approximations may vary in their accessibility and reach. Nevertheless, additional delivery models will be needed beyond the contributions of individual therapy.

## Developing a Portfolio of Models of Delivering Interventions

Interventions that can reduce prevalence (cases with some dysfunction now) and incidence (new cases that emerge) are needed to reduce the burden of mental illness. Treatment and prevention work arm in arm. We emphasize treatment to convey key points and return to its integration with prevention later in this article.

Consider all individuals in need of psychological services (treatment) as occupying a pie chart. The goal in developing multiple models of delivery is to ensure that segments (slices)



of the pie are covered (i.e., services encompass all or most in need—at least in principle). One might consider slices of the pie with the view that a given intervention or model of delivery may reach one slice, but that multiple models might be needed to cover more, most, or all of the slices. The pie notion is useful, but it does not convey the multidimensional needs of the population. There are many different reasons why people do not receive services, such as lack of access to facilities or practitioners, ethnic and cultural barriers, and many concrete obstacles (e.g., transportation, babysitting). No single model of delivery can be assured to circumvent all of the obstacles associated with a given subgroup or slice of the population pie.

Among the many characteristics that might delineate models of delivery, the ability to reach many individuals in need of services reflects the type of changes that are needed if treatment is to significantly reduce the burden of mental illness. We illustrate models of delivery of psychosocial interventions to convey some of the many options that might comprise the portfolio.

## Technologies

**The Internet.** Unlike individual therapy, the use of various technologies to deliver treatment has the ability to reach a large proportion of the population in need of services. Among the technological options, there is a rapidly growing literature on the use of the Internet (e.g., Barak, Hen, Boniel-Nissim, & Shapira, 2008; Dimeff, Paves, Skutch, & Woodcock, 2011; Ybarra & Eaton, 2005). The ability to reach a large segment of the population in need is nicely illustrated in an application to cigarette smoking, which is often a target of psychological interventions.

A series of Web-based intervention studies for smoking cessation conducted in English and Spanish have shown significant smoking termination rates through a standard smoking cessation guide and mood management course (Muñoz et al., 2006). An individualized, password-protected Web site provided access to the smoking cessation intervention to consenting eligible individuals and was used to obtain assessment data throughout the intervention. The intervention reached more than 4,000 smokers from 74 countries and was carefully evaluated (e.g., RCT, follow-up assessments). Studies of this program illustrate the potential for use of Web-based interventions and the ability to reach people in their homes. Once developed, such Internet-based administrations can be relatively inexpensive to implement and easy to maintain.

**Telephone.** As with the Internet, the telephone can be used to deliver mental health interventions for both individuals and groups (see Mohr, Vella, Hart, Heckman, & Simon, 2008). Typically, “telemental psychotherapy,” as this is sometimes called, involves administration of full sessions of therapy through scheduled weekly phone calls. This is much like the model of in-person psychotherapy, but because no face-to-face contact is necessary, it allows for remote administration of services. Interestingly, telephone-administered psychotherapies have lower rates of attrition than traditional individual psychotherapy (Mohr et al., 2008). Thus, phone-based treatment may not only

broaden the population with access to therapeutic intervention, but also potentially increase the likelihood that clients will remain in treatment. Such a model has low cost and may even reach population segments to which Internet-delivered models may not have access.

One such illustration of the potential for telephone-based intervention is nicely demonstrated in “quitlines,” initially developed to provide telephone counseling for smoking cessation through the U.S. National Cancer Institute. Tobacco users who call a quitline receive an empirically validated, standardized, and manualized intervention incorporating various services such as materials by mail, prerecorded messages, real-time phone counseling or a return phone call from a counselor, access to quitting medication, or some combination thereof (Lichtenstein, Zhu, & Tedeschi, 2010). Quitlines have demonstrated tremendous reach, as they are currently offered in all 50 states and Washington, DC and have also been adopted and sponsored at the national level of various countries in Europe, Oceania, Asia, and South and North America. Although the content and structure vary across quitlines, the initial call typically lasts less than an hour, orients the client to the program, and establishes a quit date. Subsequent calls of 10 to 15 min are scheduled following the quit date over a period of 1 or more months with a frequency based on a relapse curve (Zhu & Pierce, 1995). A staff with bachelor’s- or master’s-level training typically delivers the counseling services, although computers drive much of the quitline counseling. An estimated 1% of smokers in the United States utilize quitline services each year (Cummins, Bailey, Campbell, Koon-Kirby, & Zhu, 2007), and some states with increased marketing reach as many as 4% to 5% of their smoking populations in a single year (Swartz Woods & Haskins, 2007). Quitlines have even demonstrated a special ability to reach underserved populations, as African American smokers are more likely than any other ethnic group to utilize these services and Asian immigrant smokers are as likely as European American smokers to utilize them (Maher et al., 2007; Zhu, Wong, Stevens, Nakashima, & Gamst, 2010). This program highlights the advantages of models utilizing telephone-based intervention, namely, the potential to overcome various logistical barriers to treatment that exist for in-person individual psychotherapy. This and the brief, standardized, semianonymous nature of phone counseling administered by paraprofessionals greatly increases the accessibility and reach of the intervention.

**Smartphones.** Due to advances in technology, cellular phones are no longer simply mobile telephones for the sole purpose of making calls. Updates in these devices (e.g., GPS) provide new opportunities for methods of intervention and assessment (e.g., location of client engaged in homework assignments to overcome fear of open spaces; Boschen, 2009a, 2009b). The most commonly studied form of mobile phone intervention employs the use of short message service (SMS) or text messaging. One example of implementing an SMS-based intervention is nicely illustrated in an aftercare treatment of bulimia nervosa. Patients received weekly text messages for the 6 months following their release from inpatient psychotherapy. These messages provided

feedback on their self-reported bulimic symptoms and consisted of both standardized messages and individualized feedback (Bauer, Percevic, Okon, Meermann, & Kordy, 2003). Such an intervention has the advantages of low cost and effort, interactivity, individualization, anonymity, and widespread reach.

The increased use of multifunction smartphones provides additional prospects for methods of therapeutic intervention. These devices grant easy access to third-party applications that provide promising intervention opportunities. Although research exploring the use of such applications has only just begun, the implications for greater reach are remarkable. One example is the use of dialectical behavior therapy (DBT) for borderline personality (see Dimeff et al., 2011). A smartphone application called the DBT Field Coach provides a resource to clients, including specific skills and instructions, a log where individuals can track their use of skills throughout the day, access to uploaded supportive video and audio messages from their clinician and members of their support network, individualized motivational images when encouragement is needed, and a variety of means for enduring a crisis to prevent exacerbation of the situation, such as games and music to distract from intense emotional urges. Although this particular example of technology is used as an adjunct to the traditional individual therapy model, it nicely illustrates various resources that can be provided through mobile phone applications. Future research exploring the use of such devices may expand delivery to rely less or not at all on a professional therapist.

Another example that nicely illustrates the use of smartphone applications in therapy is an application known as Mobile Therapy (Morris et al., 2010). The application prompts users to report their mood levels throughout the day by indicating their mood on a touchscreen "mood map" and to report their levels on single-dimension mood scales for happiness, sadness, anxiety, and anger. The application subsequently provides mobile therapeutic exercises based in cognitive-behavioral techniques (such as breathing visualization, physical relaxation, and cognitive reappraisal exercises) as needed to cope with their stress and mood. A 1-month field study of the application demonstrated users' increased self-awareness and stress-coping abilities through the use of the therapeutic concepts.

These examples illustrate only a minute fraction of the opportunities that advances in networking and technology will provide for future therapeutic intervention. The constant updates and improvements in technology make it increasingly accessible to the public and provide new methods for collecting information and administering treatment. Most critical to the goal of reducing the burden of mental illness is the ability to reach those in need. Interventions that incorporate technology will reach far greater numbers of people than traditional psychotherapy and grant access to segments of the population that have been relatively inaccessible and neglected.

### **Use of Special Settings**

Another model of delivering treatment takes advantage of special settings where those individuals in need are already

present. An example of the potential to reach some such individuals is nicely illustrated in an intervention for cigarette smoking administered in a physician's office during a routine office visit. One intervention currently in use focuses on what physicians say to their patients during routine office visits. Physician visits are relatively brief (median = 12–15 min) in the United States. During the visit, advice from the physician or nurse can have a small but reliable effect on smoking. The physician says something like the following to patients who are cigarette smokers: "I think it important for you to quit tobacco use now," or "As your clinician, I want you to know that quitting tobacco is the most important thing you can do to protect your health." The comments lead to approximately a 2.5% incremental increase in smoking abstinence rates in comparison with no intervention, as seen in meta-analyses of multiple RCTs (e.g., Rice & Stead, 2008; Stead, Bergson, & Lancaster, 2008). As a result of this effect, internal medicine practice guidelines now recommend that physicians provide specific advice to stop smoking. The example is instructive because it also conveys the importance of "weak" treatments. The intervention results in a small increase in the percentage of individuals who became abstinent. Small effects on a large scale (affecting many people) provide an important complement to other models of delivery.

This example might raise concerns that many cigarette smokers may not attend routine physical exams or may not admit to smoking and therefore not receive the message. Yet the task is not to have one intervention reach everyone. We do not possess the psychological equivalent of fluoridation that can be poured into a stream from which mental health flows. Rather, we only wish to illustrate interventions that have the ability to reach individuals who might not seek intervention or not have readily available access to care. Numerous other special settings may be identified and used for the goal of reducing the burden (i.e., schools, community centers, welfare offices, family settings, to name a few).

### **Opportunities for Nonprofessionals**

The focus on everyday settings underscores opportunities for nontraditional providers to administer interventions that can improve mental health. This is not an effort to substitute high-school students, fellow parents, or work colleagues for professional therapists. Rather, in developing a portfolio of interventions, there are multiple opportunities to intervene both for prevention and treatment and these can reach many people in need. For example, in one intervention aimed at reducing rates of sexually transmitted diseases (STDs) among African American adult males, a lay health adviser administered a single-session sex-education program that reduced rates of unprotected sex and number of sexual partners and increased condom use. This intervention resulted in reduced rates of STDs in participants (Crosby, DiClemente, Charnigo, Snow, & Troutman, 2009). This program was brief, reached a portion of the population with traditionally little access to therapeutic intervention, and was administered in a clinic-based setting.

Parents have played a role in treatment administration to other parents and families as well as their own children (Hoagwood et al., 2010). For example, a parent-based intervention focused on reducing binge drinking in first-year college students (Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001). Parents were given a 35-page intervention handbook to read, which contained all of the necessary instructions for implementing the communication-based intervention with their precollege adolescents. Unlike the traditional psychotherapy model, this example highlights relatively low cost and effort and ease of administration within a home setting without the direct involvement of professionals and with very little training.

## Self-Help

Self-help is a set intervention in which the individual takes control and implements an intervention on his or her own. There are variations that reflect a continuum of external support, including complete independence; group support; and minimal to full-time aid from volunteer, semiprofessional or professional help (T.M. Harwood & L'Abate, 2010). Self-help interventions use various media (i.e., audio recordings, books, video, the Internet) to address numerous mental health concerns. For example, an Internet-based self-help treatment for panic disorder, consisting of five modules over 5 to 8 weeks, was associated with reductions in panic frequency and distress during panic attacks (J.C. Richards & Alvarenga, 2002). This particular self-help intervention was solely self-directed and included psychoeducation regarding anxiety disorder and coping skills. Once established, an intervention like this can reach many individuals and at a low cost.

In general, self-help interventions comprise an immense literature encompassing numerous approaches at various degrees of involvement by professionals. For example, an entire self-help treatment genre is based on writing. Distance writing, in the form of open-ended journal entries; autobiography; and expressive, programmed, or dictionary-assisted writing, allows for the exchange of information between professionals and participants so that help can be given without seeing one another face-to-face. A second example of the diverse approaches to self-help is that of group self-help. There are many options for group self-help interventions, as evident in support groups consisting of people facing a similar challenge and attempting to overcome their shared adversities (Davison, Pennebaker, & Dickerson, 2000). Group self-help interventions also can vary in degree of involvement of trained professionals, and some are even led by a fellow group member.

Countless self-help books, known as bibliotherapy, have been written for a wide range of mental health problems. Also, there are various Web-based self-help and informational resources for diverse problems, some of which may even incorporate online support groups.<sup>4</sup> Many self-help treatments are now evidence-based interventions with comparable effects (effect sizes) to those obtained with individual therapy (T.M. Harwood & L'Abate, 2010). With so many self-help resources available for a wide variety of conditions, including anxiety

and mood difficulties, eating disorders, addictive behaviors, personality disorders, and severe psychopathologies, the model of self-help is an excellent addition to the portfolio of models of treatment delivery. Self-help has the potential to reach individuals in need and reduce many barriers (e.g., geographic and financial barriers) associated with more traditional therapist-delivered interventions.

## Media

The media (i.e., radio, television) can be an effective way to implement widespread intervention with great capability to reach large segments of the population. Entertainment education is a prominent example of how to exert social change on critical issues including family planning, adult literacy, HIV/AIDS prevention, sexual abstinence for adolescents, parenting, and promoting a sustainable environment and mitigating climate change (Charles, 2009; Singhal, Cody, Rogers, & Sabido, 2003; Singhal & Rogers, 1999). The process begins by studying individuals within a given culture (e.g., surveys, focus groups) and developing characters for an extended radio or television drama series (depending on the medium available to the community) that reflect local culture and people in their daily lives. The characters take on different roles, deal with daily challenges of life within the culture, and model social change on the critical issues.

The goal is to achieve concrete change within individuals, communities, and societies. For example, one of the early applications in Mexico focused on family planning and efforts to reduce fertility rates (Singhal & Rogers, 1999). Family life, marital relations, and the daily drama and stressors were conveyed in detail as the televised series unfolded. The fictional family gained control over their lives and benefitted from family planning—all in realistic episodes. In terms of impact, sales of contraceptives in the community rose dramatically, and there was a 34% drop in birthrates over a 5-year period. Similar results were obtained in Kenya. More generally, the model has been used throughout the world on other social issues and has produced widely engaging shows. Ratings of shows are high, viewers or listeners become involved with the characters, and there is genuine change on the targeted social behavior, rather than just increased awareness. An effort with a focus on large-scale mental health problems, handling stress, substance use, or depression could be targeted to various groups and geographical regions and could have widespread reach, especially as this strategy has been successful on TV as well as radio.

## General Comments

Our illustrations are not intended to be comprehensive. We have taken off-the-shelf, currently available interventions—not all of which have strong evidence on their behalf. Most of these are not routinely included in reviews or evaluations of EBTs. Also, the models of delivery usually are omitted from graduate training in psychology, psychiatry, or social work and are not easily available to individuals in need of services. Our goal in mentioning



diverse models of delivery is to prompt a slightly different way of thinking about psychosocial interventions. The focus is not on one ideal model of delivery, but on dovetailing multiple models of delivery, each incorporating various characteristics that will allow them to reach many individuals in many different ways and ultimately to reduce the burden of mental illness.

We have noted that most EBTs are based on the delivery of individual therapy. This model of delivery is not very helpful in reaching the many individuals in need. However, developing EBTs may potentially contribute to the goal of reducing the burden of mental illness. The scientific principles underlying various individual psychotherapies as well as the techniques that derive from them can then be extended in a programmatic way to move from intensive, costly, and individual case application to versions that are more population based.

An excellent example is the Positive Parenting Program (Triple-P), a parenting program developed in Australia to treat disruptive behavior in preschool children (Sanders, 2008; Sanders & Murphy-Brennan, 2010). Early studies demonstrated efficacy in applications with individual families. Over a period spanning 25 years, efforts were made to develop brief and cost-effective versions of the program, ways of delivering treatment through groups, and flexible delivery through telephone consultation and the media. The range of interventions available from this one "treatment" encompasses versions of the program that can be intensively provided to individual families or provided as preventive interventions via media widely available (e.g., DVD, online). The transition involves more than just varying how treatment is presented because new tasks and challenges emerge as treatment moves to the community from the treatment setting.

We raise this example as a successful case of starting with an individual therapy model and using the treatment to develop multiple models of delivery. The challenges of moving a given treatment from an individualized version to something available to more people on a large scale will vary as a function of the clinical problem, treatment, and age of the clients. Even so, there may be some standard challenges or an approximate template as a guide to help move treatment through different models that vary in their reach.

Among the major challenges is identifying how an intervention achieves change. Although there are many EBTs available, there is little understanding of the mechanisms of change (i.e., precisely how they work; Kazdin, 2007). Understanding mechanisms of action may be extremely important when trying to develop different models of delivery of a given treatment that vary in intensity, mode, and agent of delivery. Knowing what the essential ingredients are as well as how they work (mechanisms) will ensure that these critical facets are not unwittingly sacrificed as the treatment is scaled up, monitored less closely, and abbreviated.

## Critical Issues Central to the Portfolio

If a central goal of psychological interventions is to reduce the burden of mental illness, we question whether current advances

in treatment will meet that goal and consider what more might be needed to have an impact. A portfolio of intervention models is emphasized for sensitivity to the diverse individuals in need and the contexts, settings, and circumstances required to reach them. Even so, it would be naive to imply that the field merely needs to get a bigger bag of intervention delivery tricks to solve the national (and international) burden of mental illness. There are additional and complementary considerations we highlight as well.

## Prevention

We have focused on treatment and specifically psychotherapy because of the enormous attention these receive in research, practice, and clinical training. Prevention is pivotal, and here too the same points can be made—namely, that a portfolio of preventive interventions with various models of delivery is needed. There are some ways in which prevention is further along conceptually, insofar as the portfolio of interventions (e.g., targeted, universal), the timing of interventions (e.g., prenatal, preschool), intervention settings (e.g., home, schools), and selection of samples (e.g., risk factors) recognize the need for multiple interventions delivered in multiple venues and contexts. What we add to this is the integration with treatment and the portfolio concept of identifying preventive interventions that vary in their reach and other characteristics (e.g., cost, effort). Reducing the burden of mental illness will depend on avoiding onset or limiting severity of onset and, by doing so, reducing incidence and the need for treatment. The portfolio idea would be beneficial for conceptualizing the task of prevention because it begins with who ought to be reached in the population, what interventions are likely to accomplish that for various groups, and what the effects are.

The treatment and prevention agenda are shared, complementary, and essential to integrate. The treatment question underlying this article is "What models of intervention delivery will help reach the population of individuals in need?" The prevention question is "What interventions or experiences can be provided for persons who are or might be at risk that can avert the onset or severity of some condition?" Decreasing prevalence and incidence are important for more than just the goal of reducing the burden of mental illness. Theory and principles that underlie current interventions as well as the techniques that derive from them might have variations applicable to both prevention and treatment. Many of the delivery methods (e.g., use of the Internet, parent-to-parent delivery) may be shared as well.

In short, we omitted prevention to focus our argument on the task of developing a portfolio of treatment delivery models. To reduce the burden of mental illness, we must expand our conceptualization of interventions and models of delivery. However, that thesis is equally applicable to prevention and treatment. We focused on treatment because of the advances in evidence-based psychotherapies and their still restrictive model of delivery.

## Assessment

The goal of reducing the burden of mental illness begins with better assessment to monitor mental illness and impairment nationally (i.e., some measure of the mental health of the nation). This would provide ongoing information for tracking changes in mental illness and its burden over time across cohorts and across possible social influences that might affect that baseline. There is a need for a national database on mental illness that allows comparisons over time—a point others have well articulated (e.g., Bickman, 2008; Chorpita, Bernstein, Daleiden, & The Research Network on Youth Mental Health, 2008). There are many models that are in place to monitor mental health changes over time. As a prominent case in point, the National Comorbidity Study, which samples the mental health status of thousands of adults and youths, provides data on incidence and prevalence and encompasses several countries in conjunction with the World Health Organization ([www.hcp.med.harvard.edu/ncs/](http://www.hcp.med.harvard.edu/ncs/)). Another example is the Monitoring the Future Study, which assesses behaviors, attitudes, and values of school students (<http://monitoringthefuture.org/>). The project began in 1975 and has provided data on drug, alcohol, and cigarette use nationwide and involves approximately 50,000 students (8th, 10th, and 12th grade) annually. Finally, the Institute for Health Metrics and Evaluation (University of Washington) focuses specifically on evaluating data on health indicators including prevalence of major diseases and effectiveness of health programs (Murray & Frenk, 2008). Mental health and major psychological sources of impairment would be a natural extension of this latter effort, given that mechanisms for rigorous evaluation are already in place. In short, there are precedents and methodologies for obtaining the requisite data.

A national database is a fundamental step for decreasing the burden of mental illness because it provides a baseline to better establish the extent of the burden and whether there are changes over time. We have emphasized psychosocial interventions to reduce the burden of mental illness. However, there is no single modality of intervention or discipline that has claim to the range of factors that might have such impact. Interventions, natural and human made, from climate, pollution, and natural disasters are known to have deleterious impact on physical and mental health (e.g., Berglund, Lindvall, & Schwela, 1999; Bouchard et al., 2009; Reacher et al., 2004; Satcher, Friel, & Bell, 2007). With a goal of reducing the burden of mental illness at a national level, understanding factors that might contribute could also mobilize multiple disciplines (e.g., education, sociology, social policy). A national database would provide opportunities to generate and test hypotheses about influences (e.g., economic, social) that might be understood and possibly harnessed to improve mental health.

Assessment issues emerge at a more concrete level in developing a portfolio of interventions. Outcome assessments in psychosocial intervention focus on the domain of interest. Treatments for depression, for example, include multiple measures of depression and perhaps related domains as well (e.g., stress, physical symptoms). In developing a portfolio of

interventions, outcome measures remain important. However, measures might also focus on characteristics of the treatment delivery model. Characteristics of treatment—such as what groups in need can be reached and when (developmentally) and where (setting) the intervention can be delivered—become important. The arbiter of the value of a treatment is not necessarily in its effect size on outcome measures but where that intervention fits in a broader portfolio to help reduce the burden of mental illness.

Measuring characteristics of treatment that relate to delivery is not at all new. Cost of interventions and cost-benefit analyses are examples of measures that reflect on the utility of interventions (e.g., M.G. Newman, 2000; Yates, 1995). Although these measures are not routinely used in treatment studies, they have been used on multiple occasions (e.g., Gabbard, Lazar, Hornberger, & Spiegel, 1997; Krupnick & Pincus, 1992). Cost is one important measure for building a portfolio of interventions. Other dimensions also relate to the reach of interventions, such as “therapeutic effort” (dose, degree of restrictions placed on the client, and cost of repeated episodes of the disorder; F.L. Newman & Howard, 1986). The categories or dimensions need to be devised along with operational definitions that permit some classification or characterization. The goal is to develop interventions that overlap along some dimensions but purposely do not overlap in other ways. Consequently, characteristics of interventions (e.g., how they can be used, their scale of application, when during development they might be applied) are no less important than the usual outcome measures.

## Contextual Influences on Reducing the Burden of Mental Illness

There are many influences that contribute to, determine the effects of, and limit the delivery of mental health services. There are enormous barriers for persons in need that interfere with receiving services. Some of these are perceived; others are real. Their net effects are similar. Many of the barriers involve health care policy, law, legislation, limits of insurance and third-party payment, competing interests of different stakeholders in health care, and politics. These are important to acknowledge for at least two reasons. First, collaborations will be needed with many organizations and interest groups to effect changes in policy and legislation that can influence accessibility to mental health services. As an obvious and historically important case in point, recent health-care legislation in the United States extends health coverage to tens of millions of uninsured persons, reduces health care costs for many with and without insurance, and ends insurance practices considered by many to be discriminatory.<sup>5</sup> Such legislation can alter the reach and availability of services, as well as the nature of these services (e.g., psychological services in the context of community-based health-care teams). Thus, we recognize the health-care delivery system is dynamic and an important influence in conceptualizing what services will be provided to whom.

Second, the contextual influences that drive mental health services are not necessarily immutable or givens, but they might well be influenced by developing novel models of service delivery. The development of multiple models of delivery that vary in cost, disseminability, and ability to be delivered for large-scale application might well influence contextual factors (e.g., policy, law, reimbursement) that seem outside of the control of any one discipline. For example, early intervention delivered by lay persons or via large-scale Internet applications might change the nature of insurance coverage, reimbursement, and the costs of delivering more intensive services. Insurance companies might well be willing to cover more intensive psychological intervention services for those individuals who have not responded to more readily available and less costly evidence-based interventions.

The possibility that better, different, and more diverse intervention models might reduce barriers to treatment is speculative. It is better to acknowledge that psychologists and other mental health professionals do not control or are not likely to have great impact on key policy influences related to providing services. That does not gainsay the areas over which mental health professionals do have control. The intervention research agenda could be modified to focus more on a portfolio of interventions that could reach more people and seek to reduce mental illness and its burden. Mental health professionals could readily influence implementation of preventive and treatment services if there were more to implement and more ways to deliver those services.

### **Potential Tensions Within Mental Health Professional Training**

Each of the mental health professions has a model of clinical training that combines academic and practical experiences. Training and requirements for clinical work may actually interfere with developing and implementing a portfolio of models of delivering treatment. This can be illustrated by commenting on three issues within clinical psychology: accreditation, determining who is allowed to deliver services, and reimbursement and jobs. First, within clinical psychology, accreditation of graduate training programs influences greatly the model of treatment delivery. Individual therapy and its closely related variations (family, group, couples therapy) are required. This model of delivery reflects what “counts” as legitimate training and permits one to acquire a license to practice in states and provinces within the United States and Canada. Thus, currently within the profession of psychology, a portfolio of models of delivery is not quite in keeping with requirements of training by tradition and by required courses, although there are no prohibitions against novel treatments.

We mention clinical training merely to acknowledge a potential barrier in expanding models of treatment delivery. Any broad intervention portfolio taken up by researchers may need to be reflected in clinical training. Otherwise, interventions would be developed that ultimately would not be used in practice. Accreditation requirements are very slow to

change, and merely developing new models of delivery alone will not be sufficient to ensure they will be taught in training programs, allowed by licensing boards to count as relevant experience, and then delivered in practice.

A second potential source of tension in advocating a portfolio of models is the question of who would be involved in administering interventions. Some of the interventions would focus on preventing onset of dysfunction among at-risk groups. For example, an intervention might be conducted at home or at school long before any treatment was needed. But consider interventions where treatment is needed, because this better conveys the professional issues. It is heresy within psychology to mention that one does not need to have a PhD to deliver effective or evidence-based individually tailored treatments. Indeed, it would be difficult to support empirically that PhD-trained individuals are more effective than those with less training. At best, experience and possessing a doctoral degree would be moderators of treatment—that is, they might influence outcomes in some situations. Even if there were strong evidence that a PhD improved outcomes, it would still mean there probably is no difference as a function of academic degree in many other circumstances. With a broad portfolio of interventions, there are opportunities for peers, lay people (parents), the media, teachers, bachelor's- and master's-degree-level individuals, and self-help to play a role in reducing the burden of mental illness. Actually, these are not “opportunities”—a large set of them is likely to be essential to reduce the burden of mental illness. Thus, an impediment to reducing the burden of mental illness might be assumptions and restrictions on the range of individuals who are allowed to provide services in one form or another.

A third potential source of tension stemming from the advocacy of a portfolio of models regards jobs and reimbursement for clinical services. Currently, strong advocacy and lobbying efforts focus heavily on obtaining reimbursement for PhD-level practitioners engaged in the traditional model of providing services ([www.apapracticecentral.org/advocacy/index.aspx](http://www.apapracticecentral.org/advocacy/index.aspx)). It is natural for a profession to set standards for training (e.g., accreditation, core curriculum), protect its name (e.g., use of “psychologist”), and worry about restricted and unrestricted trade practices (e.g., who is allowed to provide, charge, and be reimbursed for mental health services). Our article does not lobby for eliminating any particular practice; however, it does draw attention to the need for more options for service delivery, given the large majority of unserved individuals in need. We begin with the goal of reducing the burden of mental illness based on psychosocial interventions (i.e., those interventions to which research is or might be devoted). This point of departure opens many options, but it also sacrifices protective practices that focus on the question of who gets to deliver treatment. Rather, the goal begins with how delivery of services can be optimized to reduce the burden and what innovations in services would be needed. One would hope that there is no clash between reducing the burden of mental illness and retaining individual therapy as a model of treatment delivery as delivered by doctoral-level individuals who have accredited clinical

training. Perhaps there are new roles and opportunities for doctoral-level trained clinicians (e.g., supervising and monitoring a network of others who vary in training) that would still give the highest priority to reducing the burden of mental illness. Psychology can play a major role in providing a portfolio of interventions given the theory and research about human behavior from which to draw, even if the actual delivery of the full range of interventions has many agents of administration.

## Collaborating With Other Disciplines: Brief Illustrations

Reducing the burden of mental illness involves challenges well beyond developing a broad portfolio of treatment delivery models. The goal will require collaborating with other disciplines, in part because of the complexity of the influences to be considered in providing services under many different conditions (e.g., economic) and contexts (e.g., cultural). Collaboration in the sciences has increased (Cacioppo, 2007; Kliegl, 2008) and now collaborative work or team science exerts greater impact than work of individual investigators (Wuchty, Jones, & Uzzi, 2007). Similarly, collaborations to reduce the burden of mental illness are likely to increase the impact of any single profession. Of course mental health professionals (e.g., in psychology, psychiatry, social work) already collaborate with each other to provide treatment services. Yet the collaborations we are referring to encompass other disciplines and strategies that are beyond standard practice. Consider briefly a few disciplines and approaches and how they might contribute.

## Mathematical Modeling

With current treatments and an expanded portfolio of delivery models, one might ask, "What is the best way to allocate resources to reach those individuals and groups in greatest need or to have the greatest reduction in the burden of mental illness?" Math can be quite helpful in modeling the challenge and potential solutions. The point can be illustrated in the context of controlling epidemics, responding to a bioterrorist attack (e.g., smallpox), and deploying vaccines to keep illness to a minimum (e.g., Hughes, Garnett, & Koutsky, 2002; E.H. Kaplan, Craft, & Wein, 2002; Magal & Ruan, 2008). Critical variables such as how contagious the disease is and for what duration, how many contacts individuals have, what groups are at greatest risk for contracting or spreading the disease, how long it takes for the vaccine to take effect, and other such variables can be modeled in relation to how to minimize death and to eradicate the disease.

In relation to psychological treatment, there are three major intervention challenges to consider: preventing onset of psychiatric disorder, treating acute disorder (e.g., trauma from a catastrophic experience), and treating chronic and episodic disorders (Ulmer, Bruno, & Burke, 2010). The methods for intervening with better mental health services will vary as a function of these challenges and more specifically the types of clinical

problems, different onsets and durations, courses, and amenability to a given type of intervention that varies in cost, ease of administration, ease of delivery on the scale needed, resources to provide these interventions, and likely effectiveness, to mention some of the factors. These factors could be modeled to help guide the field in where to place the emphasis not only in delivering but also in developing interventions.

There are several areas in which math modeling plays a critical role in solving complex problems. For example, in operations research, math and statistics are used to achieve goals while maximizing the desired outcome and minimizing loss or risk. Probability theory, game theory, graph theory, decision analysis, queueing theory, and more are brought to bear to achieve some goal (e.g., Hiller & Lieberman, 2005). Early applications solved problems of deploying weapons in war and focused on decision making for complex but very practical problems. Operations research extends the point here about drawing on math but also statistics and many related modeling tools used in other disciplines to solve policy and complex application problems. Providing better mental health services is not only or even primarily a math or operations research problem, but there could be great benefit in drawing on these and related areas in deciding priorities for developing and deploying interventions.

## Technology

We highlighted the use of technology in the development of a portfolio of treatment delivery models. Arguably technology could have the greatest impact on psychological interventions in the coming years. Psychotherapy research already draws on technology, especially the delivery of direct services over the Internet for many clinical problems (e.g., anxiety, stress, pain, phobias) for the treatment of adults (e.g., Barak et al., 2008; Ritterband et al., 2003; Rochlin, Zack, & Speyer, 2004). However advanced many of these seem, this area is probably at a very early stage because of the development of the technology itself.

Three critical uses of technology are important to mention in relation to improving clinical services and their reach. First, technology can deliver interventions and reach places beyond the reach of brick and mortar services. Even though some of these treatments are still intensive (e.g., requiring a trained therapist), not all of them are. Second, and especially relevant to the portfolio, technology might well permit treatment with less, little, or no therapist contact. Clients can access materials that can promote therapeutic change with little or no therapist assistance. Finally, technology will permit refined assessment and feedback both to patients and clinical services. Electronic devices to record functioning in everyday life are already in use in such areas as the study of sleep, mood, social interaction, and speech (e.g., Hasler, Mehl, Bootzin, & Vazire, 2008; Pentland, 2008). Better assessment can greatly enhance interventions in targeting both when and to whom an intervention is provided.

Technology can be exploited much further, and collaboration with leaders in technology applications could benefit the



development of a portfolio of models of delivery. The creativity of video games may increasingly be applied to treatment or preventive regimens and be made readily available. Similarly, a library of virtual evidence-based interventions for psychological conditions is hardly a conceptual or technological leap. The initial reaction is that technology will never substitute for a “real” person. An aficionado of robotics might argue that, but the better point is that technology is not competing with a real person. It is directed toward the goal of reducing the burden of mental illness, and in this regard it can make a contribution to a portfolio of delivery models that is without peer.

Technology for intervention delivery and assessment will advance and will contribute enormously to mental and physical health. Smartphones are currently being used in everyday life, but as technology moves to increasingly brilliant phones, assessment and intervention possibilities increase. As for assessment, subjective experience and biological indices of psychological states (e.g., via breath, blood flow, electrophysiology, smells) could be fed back to some clinic but also could be fed back to the device with the client and activate some intervention. Perhaps a virtual teddy bear to hug in times of crises would reduce impairment ever so slightly. “Ever so slightly” can make a difference in determining whether an individual goes off the deep end or wades in the shallow water until a crisis passes.

### **Diet and Nutrition**

The credibility of the role of diet in the etiology and treatment of psychological and psychiatric dysfunction has suffered from faddish diets, quick cures for desperate parents and clients, and, at best, checkered evidence. It is still the case that diet “cures” are readily available on the Web (e.g., for attention-deficit/hyperactivity disorder, autism, and dyslexia) despite the absence of evidence and multiple empirical diet challenges that show little or no impact. With that background, one must tread carefully. Yet diet and nutrition continue to involve increasingly sophisticated lines of empirical research (e.g., alternative medicine, cellular microbiology of nutrition). Also, mechanisms of action of critical influences (e.g., conversion of diet to minerals to neurotransmitters; cell trafficking and transport) and the ability to assess these mechanisms in a more fine-grained fashion have changed the nature of research. It is very plausible that diet, nutrition, vitamins, and minerals affect critical psychological processes and can be harnessed to influence mental health and illness (see B.J. Kaplan, Crawford, Field, & Simpson, 2007).

From the standpoint of this article, the ability of diet to reach a large segment of people would make this an excellent addition to a portfolio of models of delivery. Of course, one would want strong evidence that nutrition and mental health were connected in relation to risk factors, etiology, and treatment. There are many intriguing leads already. For example, pesticides in one’s diet (e.g., especially on fresh and frozen fruit) have been implicated in the onset of attention-deficit/hyperactivity disorder (Bouchard, Bellinger, Wright, & Weisskopf, 2010). As

another example, several years ago, a review of fatty acid supplements for psychotic disorders suggested that the research was promising (Joy, Mumby-Croft, & Joy, 2003). More recently, a randomized and placebo controlled trial suggests therapeutic effects of fatty acid supplements on psychoses (Amming et al., 2010).

The roles of diet and nutrition in mental health remain to be developed. Any dietary component that could be harnessed and shown to prevent, treat, or attenuate acute or chronic psychiatric symptoms would be a valuable addition to the portfolio of treatments. We are not suggesting that diet is the answer or that the new *New Yorker* therapy cartoon should be a drive-through fast-food place to treat serious psychopathology. We are suggesting that if the focus is on reducing the burden of mental illness and associated conditions, there are several partners in this enterprise. Nutrition might well be one. The arbiter is evidence and allegiance to the goal rather than allegiance to a profession or a restricted model of treatment delivery.

### **Epidemiology and Public Health**

These two linked disciplines are obvious partners because they focus on the distribution of dysfunction (e.g., disease), the factors involved in risk and prevention, and population-based interventions. Reducing the burden of illness and disease is central to the goals, and drawing on that orientation will be pivotal to work in the mental health professions. As an example of a public-health approach, the Office of Disease Prevention and Health Promotion has delineated a national goal: Healthy People 2020 ([www.healthypeople.gov/](http://www.healthypeople.gov/)). This initiative sets national objectives for promoting health and preventing disease. Every 10 years, the initiative draws on what has been learned from research regarding health and uses that as a basis for setting priorities. The public sector and various stakeholders are involved to craft the policy and to promote health. Major agencies also illustrate the public-health approach. Prominent among these is the Centers for Disease Control, which takes a population approach to prevent illness and to improve the quality of life ([www.cdc.gov/](http://www.cdc.gov/)). Among the key features of epidemiology and public health and the specific examples mentioned briefly here are interest in evaluating health and disease, the factors that predict onset and can be used to identify groups at risk, the development and testing of intervention strategies, and encouragement to move to policy or widespread adoption where possible. They also recognize the disparities in health-care delivery and those who are not served.

A public-health approach is central to a portfolio of interventions. The field needs population-based interventions that can reduce the burden of mental illness through prevention as well as treatment. However, population-based interventions alone will not be sufficient; many individuals in need will be missed, many who do receive the intervention may not respond, and many who respond may not respond well enough. Also, public-health approaches often consist of providing information to the public. Psychological science can add to this approach by drawing on theory and research (e.g., message



framing, social norming, focusing illusion) that might be applied to optimize changes in attitudes, behaviors, decision making, and subjective experience.

A public-health perspective sensitizes the field to an approach to interventions that warrants more influence on what is done in psychology. At the extreme, a very costly intervention could be identified (e.g., individual, weekly, in-person psychotherapy) that can only be applied on a small scale to a very select few of the many in need. In a portfolio of intervention models, there is a need and place for that intense focus. However, the mental health professions must also identify interventions that are effective and could be provided on a greater scale to larger groups (e.g., communities, large patient groups). There are examples in which public-health (population) perspectives are being encouraged to address family interventions for parenting and domestic violence (e.g., Sanders, 2008; Sher & Halford, 2008). Advances in technology, mentioned earlier, also provide a window to increasingly larger extensions of psychological interventions to the public at large. Collaborations with public health at the outset of intervention development could enhance development of the portfolio of interventions.

## General Comments

We have highlighted a few of the many disciplines and areas with which we might collaborate in the effort to reduce the burden of mental illness. There are many other disciplines (e.g., economics, business) and topics (e.g., exercise, meditation) that could have been included. Our illustrations are to advocate for partnerships rather than to limit who those partners might be.

Reducing the burden of mental illness can profit from many basic and applied areas of psychological research. Intervention research is the work most immediately directed to the goal, yet intervention research alone will not accomplish the goal of reducing the burden of mental illness. For example, producing “new and improved” EBTs may do little if still administered as individual therapy in ways that systematically exclude most of the population in need and especially those most in need. Partnering with other areas can help shape the agenda and provide theory, research, and methodological tools that can guide development of models and how they can be deployed to reach those in need.

## Conclusions

This article began with the view that psychosocial interventions directed toward mental illness and health should primarily focus on the reduction of mental illness and the impairment associated with social, cognitive, emotional, and behavioral functioning. The prevalence of dysfunction is relatively high, and most people who might benefit from services for their dysfunction do not receive care. Additional resources in terms of person power might help. However, the dominant model of treatment delivery in clinical practice focuses on in-person treatment provided to individuals or relatively small units (groups, family, and couples). The model constrains the ability

to reach individuals in need, even if the number of mental health professionals doubles. Developing EBTs and placing these in the hands of practitioners remain laudable accomplishments and goals, respectively. Although we as researchers and clinicians ought to perfect our individual treatments, understand how they work, and disseminate them, much more attention is needed to those models of delivery that can reach the majority of people in need; that will require a portfolio of models of delivery.

The goal of developing a portfolio of models of delivery expands on the traditional and current research agenda. Much of research in the context of therapy has compared treatment against treatment as usual or has compared different treatments to see which one is better or best. Indeed, the federal Comparative Effectiveness Research agenda highlights and underscores this as a current priority ([www.hhs.gov/recovery/programs/cer/index.html](http://www.hhs.gov/recovery/programs/cer/index.html)). When two (or more) interventions have identical or nearly identical goals and are very similar in their characteristics (e.g., to whom they can be applied, for a given cost, on a given scale), invariably there is the question of which one is better. If they are equally effective, there is the question of whether one has some other advantage (e.g., fewer side effects).

The research agenda implied by the development of a portfolio of delivery models shifts the current focus a bit. Evidence that an intervention is having an effect is still needed. However, interventions that vary widely in their reach, focus, costs, effects, and other dimensions are crucial. Separate components of a portfolio that will not be directly comparable are needed. Each is useful in relation to the overall goal (reducing incidence or prevalence), but they will focus on different windows of opportunity to effect change and will be targeted to different people, in different settings, and so on. Direct head-to-head comparisons will not be as relevant if there are different interim goals needed to achieve the longer term goal of reducing the burden of mental illness.

The evaluation of some intervention research may change slightly. For example, EBTs often seek large mean effect sizes (ES; e.g.,  $d > .80$  a la Cohen, 1988). With a broader portfolio of models of delivery, strong ESs are not always the first consideration. An intervention with a larger ES is not invariably better than one with a smaller one. An intervention with a weak but reliable effect that can reach large numbers with little cost would be worth having and could only be bumped out of place (think of the Olympic sport of curling) by another intervention with a greater ES that addressed the same population, cost, and so on. Also, it is quite possible, even in this context, that both treatments are kept as viable options because they reach a slightly different group among those in need.

In addition to the research agenda, conceptual work is needed to address the broad focus on reducing the burden of mental illness. The task is to consider how interventions might relate to each other, how they might be sequenced in a step-like fashion, to whom they are applied, and when. For example, reducing the burden of depression requires consideration of different ages of onset, different types of depression, and different

durations of depression. It would be helpful to develop broader concepts for where to begin here. If the goal were to reduce the burden of unipolar depression, one consideration would be to determine the windows of opportunity that might be used across the developmental spectrum for preventing onset and reducing impairment of those who are currently depressed. Formal consideration of the battleground and where first, best efforts are likely to have impact would be an important step. By formal consideration, we refer to drawing on specific models (e.g., math modeling, operations research, strategic planning) that help guide the agenda.

Mental health professionals might continue to refine individually delivered therapies, perhaps especially if they generate techniques or principles that can be applied in different ways. Yet it is necessary to make progress in new ways with a focus on the goal of decreasing mental health problems. Mental illness is an enormous burden. Anyone with a family member who suffers from mental illness knows all too poignantly the personal costs, the suffering and pathos of those who experience the dysfunction, and the toll of the necessary care for a loved one directly suffering. From a societal perspective, public and private agencies at every level know the burden of economic costs. Most people with mental illness are not being served. The challenge is determining what is being done in applied intervention work to reduce mental illness and extend care to those in need. Current models of delivery need to be expanded to reduce the burden. Continued proliferation of treatments delivered in a way that cannot reach most people in need ought to be reconsidered. The goal of this article was to draw attention to a neglected, albeit central goal of psychosocial intervention research—namely, the goal of reducing the burden of mental illness. The research, practice, and training agenda ought to integrate this goal of intervention work with the needs of the national and international community.

### Editor's Note

If you are interested in commenting on Kazdin and Blase, you can submit a 200-word abstract to the *Perspectives* portal at <http://mc.manuscriptcentral.com/pps> by February 14.

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The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

### Notes

1. We use the term *mental illness* rather than a new term (e.g., burden of psychological dysfunction) to connect to the broader literatures in which the burden of mental and physical disability has been evaluated. Also, our discussion focuses on the burden of mental illness within the United States, although of course the burden is worldwide.
2. Psychotherapy is defined broadly in this article to include systematic efforts to apply psychosocial intervention to reduce distress or maladaptive behavior or enhance adaptive functioning. Psychosocial intervention, in contrast to medical or biological intervention (e.g., medication, surgery), focuses on such means of change as interpersonal interaction and systematic experiences (e.g., new ways of behaving through practice, role-playing, homework assignments, advice) designed to produce change. The therapist provides conditions to alleviate that person's distress and to improve functioning in everyday life (e.g., Garfield, 1980; Mahrer, 1986). The interaction is designed to alter the feelings, thoughts, attitudes, or actions of the person who has sought or has been brought to treatment.
3. CONSORT encompasses multiple procedures to improve the quality of reporting of empirical tests ([www.consort-statement.org/](http://www.consort-statement.org/)). Examples include detailed information about participant inclusion criteria, recruitment, screening, and attrition; how the intervention was administered; and unplanned changes from the protocol. The standards have been adopted by hundreds of professional journals from many disciplines and countries (see [www.consort-statement.org/about-consort/supporters/consort-endorsers-journals/](http://www.consort-statement.org/about-consort/supporters/consort-endorsers-journals/)).
4. Understandably, there is professional skepticism about self-help books and materials, given an unrelenting tsunami of such products based on opinion, clinical (but not empirical) evidence, and both common and uncommon sense. It is true that the majority of self-help materials in the local bookstore have not been evaluated empirically. In fairness, it is appropriate to note as well that the vast majority of psychotherapies in use have no supporting evidence for their effectiveness (see Kazdin, 2000).
5. The enacted laws are referred to as the Patient Protection and Affordable Care Act (P.L. 111-148) and the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152; see [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111\\_cong\\_bills&docid=f:h3590eas.txt.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h3590eas.txt.pdf); [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111\\_cong\\_bills&docid=f:h4872enr.txt.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_bills&docid=f:h4872enr.txt.pdf)).

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