Novel Models for Delivering Mental Health Services and Reducing the Burdens of Mental Illness

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What is This?
The burdens of mental illness in terms of individual and family suffering and financial costs in developed and developing countries have been recognized for some time (see Desjarlais, Eisenberg, Good, & Kleinman, 1995; Eaton et al., 2011; World Health Organization [WHO], 2010). Attention to the burdens has increased within the past decade in light of converging influences, including improved data on the incidence and prevalence of dysfunction worldwide and on disparities of care within and among nations; recognition that mental illness plays a critical role in physical health care and economic development; and global attention to the impact of natural (e.g., earthquakes, tsunamis) and human-caused (e.g., war, forced migrations and resettlement) disasters on both physical and mental health. The mismatch between need and provision of mental health services has become even more salient with advances in pharmacological and psychological treatments. Regarding the latter, for example, many evidence-based psychosocial interventions are available that can ameliorate a variety of dysfunctions in children, adolescents, and adults (e.g., National Registry of Evidence-Based Programs and Practices, 2012). If we could only deliver these interventions to reach those in need.

The importance of addressing mental illness has been well recognized in its own right. Yet, accelerated attention emerged from global health initiatives to treat physical disease (e.g., chronic, infectious; Institute of Medicine [IOM], 2010; WHO, 2011b). Initiatives to provide physical health care services revealed gaps in mental health services. Moreover, as we note later, it became clear that mental health and physical health are inextricably intertwined, with bidirectional, reciprocal, and comorbid relations. Reducing the burdens of physical health could not neglect mental health, as reflected in the oft-cited statement there is “no health without mental health” (Prince et al., 2007, p. 859; WHO, 2005, p. 11).

Several models or strategies of delivering treatment and preventive interventions emerged to address physical diseases. Many barriers for delivering care for physical health care to large swaths of individuals in need, particularly in developing countries, were recognized to be similar to the barriers of providing mental health care (Lancet Global Mental Health Group [LGMHG], 2007; Sharan et al., 2009). Consequently, models for delivering treatment proved to be applicable to both mental and physical health services.

Against this backdrop, new models emerged for delivering both medical and psychological interventions. Model of...
delivery refers to how the treatment is provided (i.e., by whom, where, and in what context) and can be distinguished from the treatment itself (e.g., one-time vaccination, weekly medication, surgery, cognitive behavior therapy). These models are not in widespread use in the mental health professions (i.e., clinical psychology, psychiatry, social work) in part because they emerged from other disciplines and professions (e.g., medicine, public health, business). We highlight several models of delivery to expand on those models currently in use in the mental health professions and to reach more underserved individuals. We focus on psychosocial interventions broadly conceived as distinguished from more biologically based interventions (e.g., medication, deep brain stimulation, diet).

We begin by highlighting the challenge of the burden to clarify the impetus for the article and then discuss and illustrate several different models of delivering psychological services. In a prior article, we noted that a portfolio of models of care is needed to address the burdens of mental illness (Kazdin & Blase, 2011). This article brings together models from diverse domains that can greatly expand the reach of psychosocial treatments and redress the mismatch between need for and access to services.

The Challenges of Meeting the Need for Mental Health Services

Impetus for considering, developing, and utilizing novel models of delivering psychological treatments stems from increased recognition of the burden of mental illness (e.g., Reeves et al., 2011; WHO, 2011b). Worldwide approximately 30% of the population is estimated to have at least one mental disorder within a 12-month period (LGMHG, 2007). In the United States, approximately 25% (~79 million people) of the population (~314 million) meets criteria in any given year (Kessler et al., 2009; Kessler & Wang, 2008). Over the course of a lifetime, approximately 50% of the U.S. population meets criteria for at least one psychiatric disorder. In short, the number of individuals with a psychiatric disorder at any given point in time is enormous and presents a major challenge for providing care and services.

The monetary and personal costs of psychiatric disorders are enormous as well. For example, substance use disorders, the most prevalent mental disorders in the United States, affect over 20 million Americans and cost approximately $500 billion annually (Jason & Ferrari, 2010). The main costs are for medical and psychiatric treatment, criminal justice (for substance-related crimes), and loss of earnings. Reductions in annual earnings on average in the United States are approximately $16,000 less for individuals with diagnosis of a mental disorder, compared to their control counterparts. 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 over 5 weeks of lost productivity per worker, resulting in an annual capital loss to employers of $36 billion (Kessler et al., 2006). Costs extend to impairment in everyday situations. Psychiatric disorders account for over 50% of the days that individuals report that they could not perform their usual tasks when queried about physical or mental health (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). As a dramatic illustration, in 2004 the burden of depressive disorders (e.g., years of good health lost because of disability) was ranked third among the list of mental and physical diseases (World Federation for Mental Health, 2011). By 2030, depression is projected to be the number one cause of disability, ahead of cardiovascular disease, traffic accidents, chronic pulmonary disease, and HIV/AIDS (WHO, 2008).

A critical aspect to reducing the burden of mental illness is the ability of effective interventions to reach those in need of services. Recent years have seen an increase in the proportion of people in need who receive treatment in the United States, with 20.3% of individuals suffering from a disorder between 1990 and 1992 and 32.9% receiving some form of treatment (e.g., psychiatry services, complementary and alternative medicine) between 2001 and 2003 (Kessler et al., 2005). This leaves approximately 70% in need of services not receiving them. Ethnic disparities with respect to access to mental health care add important challenges of providing services. Ethnic minority groups (e.g., African, Hispanic, and Native Americans) have much less access to care than do European Americans (e.g., McGuire & Miranda, 2008; Wells, Klap, Koike, & Sherbourne, 2001). The lack of available services for most people and systematic disparities among those services underlie the importance of delivering services in ways that can reach many more people and target special groups.

Current Models of Delivering Psychological Services

Psychosocial interventions refer here to the broad range of psychotherapeutic services designed to treat or ameliorate psychiatric disorders; social, emotional, cognitive, and behavioral problems; stress; and related sources of impairment. These interventions draw on many conceptual views (e.g., cognitive, family, psychodynamic, humanistic), each with multiple variations and in total comprising hundreds of specific treatment techniques (e.g., graduated exposure, interpersonal psychotherapy, multimodal psychotherapy). For this article, our focus is on the model of delivery (i.e., how an intervention is provided) rather than conceptual underpinnings or techniques of specific treatments.

Dominant model of delivering services

The dominant model of delivery of the various therapy techniques is administration by a highly trained (e.g., master’s or

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doctoral level) mental health professional in one-to-one, in-person sessions with a client. Typically, clients visit a particular setting (e.g., clinic, private office, health care facility) where the sessions are held. This model has historical connections to medicine and the “physician’s practice” model (C. M. Christensen, Grossman, & Hwang, 2009). Indeed, many early psychological techniques (e.g., Mesmerism, hypnosis, psychoanalysis) were provided by physicians (e.g., Anton Mesmer, James Braid, and Sigmund Freud, respectively) and followed medical practice. Currently in the United States, the majority of treatments are administered in the one-to-one, in-person therapy model, and that applies to well-developed evidence-based interventions as well as the much larger number of interventions yet to be evaluated empirically (e.g., Hersen, 2005; Kazdin, 2000). The one-to-one, in-person model has been enduring, is in demand, and can deliver many evidence-based interventions. Indeed, the now vast research on evidence-based interventions supports not only scores of specific interventions but, by implication, the dominant model through which they are delivered. The focus of this article is on reaching the majority of individuals who are in need of treatment but are not being served by this model.

Perhaps the dominant model of providing in-person treatment by a trained mental health professional would be more viable if the person-power pool were greatly increased. The estimated number of mental health professionals in the United States who provide services (i.e., 700,000; Hoge et al., 2007) is likely to be an underestimate given the range of providers under different auspices (e.g., pastoral work, counselors who use other names but still provide therapy). Thus, no single number ought to be considered complete. Even so, it is difficult to envision that the number could help sufficiently if 25% of the U.S. population in any given year meets criteria for a psychiatric disorder. Characteristics of the geographical distribution, interests, and composition of the highly trained professional workforce convey why sheer numbers alone will not mitigate the problem of reaching many unserved individuals in need.

First, in the United States, mental health professionals are concentrated in highly populated, affluent urban areas and in cities with major universities (Health Resources and Services Administration, 2010). Thus, their distribution limits reaching large swaths of people in need (e.g., rural areas, small towns). Second, the majority of mental health professionals do not provide care to populations and clinical problems for which there is a great (children, adolescents) and expanding (the elderly) need (IOM, 2011a, 2012). Too few mental health professionals are trained to provide services to these groups. Finally, disproportionately few mental health professionals reflect the cultural and ethnic characteristics of those in need of care. Also, too few of those who are trained are in neighborhoods where their services are needed. For these reasons, expanding the workforce to deliver treatment with the usual one-to-one, in-person model of care is not likely to have major impact on the burdens of mental illness.

Expansion of delivery models

One-to-one, in-person therapy is referred to as the dominant model because clinical practice, graduate training, clinical program accreditation, pre- and postdoctoral internships, and research on psychosocial interventions draw heavily on this model. The need to move to additional models has been recognized for decades (e.g., A. Christensen, Miller, & Mühöfz, 1978; Ryder, 1988), but converging influences mentioned earlier have increased the calls for other models. Moreover, concrete options are now available and viable (e.g., Bennett-Levy et al., 2010; Harwood & L’Abate, 2010; L’Abate, 2007; Rotheram-Borus, Swendeman, & Chorpita, 2012). We add to these calls by drawing on initiatives that are outside the mental health professions and that reflect multiple influences related to physical and mental health care.

Within the mental health professions, the model of delivering psychosocial interventions is expanding. Many of these involve the use of technology and online versions of treatment that draw on the Internet and other media, including video, phone, and application software (apps) for smartphones and tablets. Broad areas such as telepsychiatry encompass many of these applications when used over distances (e.g., Wooton, 2003). Impetus for telepsychiatry included some of the features that underlie models that we present, namely, a shortage of highly trained personnel to provide in-person treatments when needed.

Some uses of technology are variants of the dominant model in the sense that they are one-to-one and face-to-face (e.g., individual sessions by Webcam) but extended to places where there may be no service or suitable facilities available. Other extensions include self-help interventions and a vast array of techniques (e.g., online interventions, expressive writing techniques) that are available 24/7 and require little or no assistance from a trained professional (L’Abate, 2007). Several Internet, computer-based, self-help, and low-cost psychological interventions are evidence based and achieve effects (i.e., effect sizes) at least on par with the similar technique administered in person by a trained mental health professional and are high in client adherence to and satisfaction with treatment (e.g., Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010; Cartreine, Ahern, & Locke, 2010; Harwood & L’Abate, 2010).

We mention these expanded versions of delivering therapy because they are extensions of the dominant model, broaden the reach of therapy to many who otherwise might not receive services, and play an important role in addressing the challenges we highlighted previously. We are not covering online, self-help, and other emergent technologies within the mental health professions, because they have been well covered elsewhere (e.g., Andrews et al., 2010; Barak, Hen, Boniel-Nissim, & Shapira, 2008; Mohr, Vella, Hart, Heckman, & Simon, 2008). We focus on models that are not widely recognized for their potential in contemporary clinical psychology, psychiatry, and social work. These interventions can add to the
dominant and expanded models of delivery and perhaps scale up interventions in ways that these other models may not be able to achieve.

Novel Models and Their Application to Mental Health Care

We refer to the models of delivery as novel in the context of the dominant way in which psychological services are provided within the mental health professions currently in the United States. We selected models that have a subset of characteristics:

- **Reach**: Capacity to reach individuals not usually served or well served by traditional service delivery models.
- **Scalability**: Capacity to be applied on a large scale or larger scale than traditional service delivery.
- **Affordability**: Relatively low cost compared to that of the usual model, which relies on individual treatment by highly trained (master's, doctoral degree) professionals.
- **Expansion of nonprofessional workforce**: Increases the number of providers who can deliver interventions.
- **Expansion of settings where interventions are provided**: Brings interventions to locales and everyday settings where people in need are likely to participate or attend already.
- **Feasibility and flexibility of intervention delivery**: Ensures that the interventions can be implemented and adapted to varied local conditions to reach diverse groups in need.

The models are not unified in the sense of emanating from a single source (e.g., discipline, movement) or having an overarching principle that allows us to classify them crisply. Indeed, the models have emerged from multiple contexts, including public health, medicine, and business. We highlight the individual models, convey their origins and use, and describe how they have been or might be used to address the burdens of mental illness.

**Task shifting**

**Definition and background.** Task shifting is a method of strengthening and expanding the health care workforce by redistributing the tasks of delivering services to a broad range of individuals with less training and fewer qualifications than traditional health care workers (e.g., doctors, nurses). This redistribution allows an increase in the total number of health workers (e.g., nonprofessionals, lay individuals) to scale up the scope of providing services. The concept and practice of task shifting are not new and currently are in place in many developed countries (e.g., Australia, England, United States) where nurses, nurse assistants, and pharmacologists provide services once reserved for doctors. Also, community health workers, a term defined long before task shifting was developed, have provided specific health services (e.g., birthing, neonatal care, immunization) in developing and developed countries and with demonstrated efficacy (e.g., Bang, Reddy, Deshmukh, Baitule, & Bang, 2005; Greenwood et al., 1989). These workers consisted of individuals trained outside of traditional medical training positions. Task shifting represents an extension in which multiple tasks are shifted to different levels (e.g., nurses and midwives taking on more roles restricted previously to doctors, lay individuals taking on roles restricted previously to nurses, and patients helping out in their own care and care of others).

Task shifting emerged from global health initiatives, particularly in developing countries. These initiatives focused on treating and preventing infectious (e.g., malaria, HIV/AIDS, tuberculosis) and noncommunicable disease (e.g., cardiovascular disease, diabetes, cancer, respiratory disease) and improving living conditions and education (e.g., IOM, 2010, 2011b; United Nations, 2000; WHO, 1978, 2011a). These initiatives provide an important context because they contended with key challenges of meeting health care needs in many cultures, under a variety of conditions (e.g., enormous resource constraints, geographical obstacles), where people in need of services were not likely to receive them. Key strategies to address the problems included reorganizing and decentralizing health services to accommodate the limited traditional resources and infrastructure (e.g., medical personnel, hospitals).

Task shifting began in earnest with specific attention to the treatment of HIV/AIDS (WHO, 2008). The epidemic and spread of HIV/AIDS heightened the need to increase quickly the delivery of services to unserved individuals and to reduce the burden of the epidemic. The need for services in many developing countries was sharply contrasted with traditional means of providing care. For example, approximately 95% of individuals with HIV/AIDS reside in developing countries and almost two thirds of them in Sub-Saharan Africa. Yet, Sub-Saharan Africa has only 3% of the world’s health workers and provides less than 1% of the world’s health expenditures (WHO, 2008). Globally, an estimate of an additional 2.4 million doctors, nurses, and midwives would be needed to meet national and international goals (WHO, 2006). The United Nations agreed to work toward access to prevention, treatment, care, and support programs universally by 2010. To that end, the range of workers recruited for health care expanded and included nurses, midwives, community residents (some of whom were individuals living with HIV/AIDS) who could provide specific services, support of others, and help to overcome stigma and discrimination in their local communities.

The majority of task-shifting applications have focused on physical health in developing countries (e.g., Ethiopia, Haiti, Malawi, Namibia) where shortages of human resources and the burden of illness (e.g., HIV/AIDS) are acute. Empirical evaluations have shown task shifting to rapidly increase access...
to services, reach large numbers of individuals in need, and yield good health outcomes and high levels of patient and counselor satisfaction (WHO, 2008). The utility and effectiveness of the procedure were shown in high-income as well as resource-constrained countries. This evidence also controverted concerns that task shifting leads to low-quality care or that lay counselors would be less effective than professional workers in the outcomes they achieve.

**Applications to mental health.** As physical health initiatives expanded globally, mental health received increased attention and became the source of its own set of initiatives. For example, in 2007, an international group of health researchers noted that the burden of mental illness worldwide, the enormous proportion of individuals not receiving treatment, and the availability of effective interventions were among the key reasons why expansion and scaling up of mental health services were “urgently needed” (LGMHG, 2007, p. 1242). Also, several lines of work demonstrated that physical health and mental health are integrally related (e.g., Boehm & Kubzansky, 2012; LGMHG, 2007; O’Donohue & Cucciare, 2005; Prince et al., 2007; Sharan et al., 2009)—for example,

- substance use and abuse directly affect morbidity and mortality from physical disease (e.g., cardiovascular disease) but also from injury and death from all causes,
- physical health problems (e.g., failing health, physical disability, diabetes, cardiovascular disease) are linked to later mental health problems (e.g., depression),
- individuals with mental health problems have much higher rates of utilizing medical care services (e.g., emergency room visits, self-referral for medical treatment), and
- delivering mental and physical health services shares several common barriers.

Task shifting was extended to mental health problems because of its ability to be scaled up to provide services to individuals who otherwise did not have access to care and its adaptability to diverse countries, cultures, and local conditions. An exemplary application of task shifting to mental health was a randomized controlled trial (RCT) of treatment of anxiety and depression in India (Patel, Weiss, et al., 2010). Twenty-four public and private facilities (including more than 2,700 individuals with depression or anxiety) received a stepped-care intervention beginning with psychoeducation and then interpersonal psychotherapy, as needed and as administered by lay counselors. The lay counselors had no health background and underwent a structured 2-month training course. Medication was available, as was specialist attention (health professional) for suicidal patients. At 6 and 12 months after treatment, the intervention group had higher rates of recovery than did a “treatment-as-usual” control group administered by a primary healthcare worker, as well as lower severity symptom scores, lower disability, fewer planned or attempted suicides, and fewer days of lost work (Patel, Weiss, et al., 2010, 2011). Overall, the study showed that lay counselors could be trained to administer interventions with fidelity and that their interventions reduced prevalence of disorder in a large sample.

This illustration conveys that task shifting, at least in developing countries, is beyond the stage of potential utility in delivering mental health services for individuals meeting criteria for psychiatric disorder. Evidence from other studies conveys the impact on depression and schizophrenia (e.g., Balaji et al., 2012; Rahman, Malik, Sikander, Roberts, & Creed, 2008). These demonstrations not only establish the clinical utility of task shifting but add to the evidence that lay counselors can deliver effective treatment and that outcome effects are not sacrificed in the process. Moreover, studies evaluated outcomes on a larger-than-usual scale for psychological intervention studies, evaluated and monitored treatment fidelity, and included follow-up, among other features.

**Key considerations.** Task shifting has several features leading us to include it as model of delivery of psychological services. Table 1 summarizes these in relation to criteria we mentioned previously. Task shifting has several additional noteworthy features, including its applicability across countries (developed or developing) and across types of health care needs (e.g., prevention, treatment; physical disease, mental illness). The approach emphasizes standardized treatments, a decentralized delivery model, and simplified treatment protocols. Standardized training is provided to lay counselors, and monitoring and evaluation are built into the system (e.g., to ensure integrity of treatment, to evaluate outcomes). As a model of delivery, task shifting is designed to provide interventions on a large scale and to reach individuals who otherwise would not receive services. These are key characteristics needed for mental health services in both developed and developing countries.

Task shifting is a multistage process that we have oversimplified to draw attention to the treatment delivery facet. The process begins with consultation of experts, stakeholders (e.g., patient population) in a given location (e.g., country), national endorsement by ruling political government, and attention to regulatory requirements on a temporary and more permanent basis that might preclude or limit delivery of treatment. In any given application, task shifting requires coordination among government agencies, nongovernment organizations, professional organizations, and local governments. This might make task shifting more easily implemented in developing countries where infrastructures (e.g., from local and national government, accrediting organizations) might be more amenable to change or at least rapid change. Clearly, task shifting has its own special challenges. In its favor is the demonstrated ability of the model to deliver physical and mental health services, to show positive outcomes on a large scale and in diverse circumstances, and to have an empirical base for guidelines about
implementing the model. There might well be special seg-
ments of the population (e.g., elderly) or segments of the coun-
try (e.g., rural areas) that are particularly underserved in the
United States as a point of departure to apply task shifting.

**Disruptive innovations**

**Definition and background.** Disruptive technology or dis-
ruptive innovations emerged from business rather than health
care (Bower & Christensen, 1995; C. M. Christensen, 2003;
C. M. Christensen et al., 2009). The concept pertains to a
change in a product or service that is not a linear, evolutionar-
y, or incremental step. Rather the product or service often
provides a disruptive, disjunctive, or qualitative leap and de-
velops or extends a market that is not otherwise being served.5
Disruptive innovation theory refers to the process by which
products or services that are complicated, expensive, and less
affordable move to novel delivery models and products that
change these characteristics.

The concept of disruptive innovation may not be familiar,
but the many innovative products and services that illustrate
its application are part of our routine daily life (C. M.
Christensen et al., 2009). For example, e-mail, free video con-
ferencing, and text messaging are not mere extensions of ear-
lier forms of communication (e.g., postal service, landline
phones) but a leap in new ways of staying in touch that are
rapid, very accessible, less costly, and with novel advantages
(e.g., rapid exchanges of text messages, photos, and video). As
a related example, the development of cell phones made phone
services available in many developing countries where service
was lacking or quite restricted because of the limited infra-
structure and means of providing inoculations would not
overcome the many barriers to reaching individuals in need
and achieving the necessary level of community immunization
(crowd or herd immunity) to protect the public.

**Applications to mental health.** Disruptive innovations
could provide more accessible ways of delivering mental
health interventions (see Rotheram-Borus et al., 2012). Many
interventions already have extended to mental health care
through the use of smartphones, tablets, the Internet, and video
conferencing (e.g., Backhaus et al., 2012; Barak et al., 2008;
Bennett-Levy, 2010). For example, smartphones and tablets
provide opportunities for assessing psychological states and
bringing interventions to individuals in their everyday lives.
The assessment can provide feedback in real time that can
activate treatment from one’s communication device. To

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**Table 1. Key Characteristics of Each Novel Model**

<table>
<thead>
<tr>
<th>Model</th>
<th>Reach</th>
<th>Scalability</th>
<th>Affordability</th>
<th>Expansion of workforce</th>
<th>Expansion of settings</th>
<th>Feasibility and flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task shifting</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<tr>
<td>Disruptive innovation</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>Y</td>
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<tr>
<td>Unconventional settings</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>Y</td>
<td>?</td>
<td>Y</td>
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<tr>
<td>Best-buy interventions</td>
<td>Y</td>
<td>?</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>Y</td>
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<tr>
<td>Lifestyle change</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>Y</td>
</tr>
<tr>
<td>Social media</td>
<td>Y</td>
<td>Y</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>Y</td>
</tr>
</tbody>
</table>

Note: Y = yes, the model includes this characteristic; ? = the model may or may not include this characteristic. As conveyed in the text, some models of delivery (e.g., best-buy, social media) have variants of how treatment is delivered and so our characterizations are broad summaries.
illustrate, biofeedback (as an intervention for stress) in years past required traveling to a facility (e.g., a lab) with the suitable equipment. Currently, many portable and affordable devices (for measuring heart rate, blood pressure, blood glucose levels) are available for the public and can provide the necessary feedback or periodic monitoring to extend biofeedback in everyday life (i.e., wherever the individual is at a given point in time; e.g., Pallavicini, Aleri, Repetto, Gorini, & Giuseppe Riva, 2009; Zhang, Wu, Wang, & Wang, 2010). Sensors that monitor heart or breathing rate and provide information immediately (e.g., in color or graphical display) can prompt the use of relaxation and other self-management techniques (e.g., RelaxLine, 2010; StressEraser, 2012). Apps for smartphones and tablets are constantly emerging and now will allow assessment, feedback, and applications of interventions that can change mental health care.

Online delivery of treatment is a disruptive intervention that we already mentioned as an extension of the dominant model of therapy. Multiple options are available online for the treatment of anxiety and depression. These programs often include the same core cognitive behavioral treatment sessions as used with in-person treatment (e.g., scheduling of positive activities, identifying and challenging cognitive distortions) and are divided into sessions (with video clips describing key information and assigned homework) that patients can complete from home. There are now scores of other evidence-based self-help psychosocial interventions for a range of psychological problems (Bennett-Levy et al., 2010; Harwood & L’Abbate, 2010). These interventions can leap over many of the usual barriers of receiving treatment and expand on the dominant model of in-person, individual psychotherapy at a clinic.

When such disruptive innovations first emerge (e.g., personal computer, cell phone), they do not compete head-to-head with the traditional product (e.g., mainframe computer, centralized computers in industry and on campuses, landline phones, pay phones). Over time the innovation may begin to compete and take over as the product develops and the use expands. Perhaps innovative treatment delivery models that are disruptive, such as computerized, online, and self-help therapies, will have that same course.

**Key considerations.** Table 1 summarizes key features of disruptive innovations as a broad model of delivery. There are many individual innovations that fall within the model, but there are general characteristics worth noting. Typically, disruptive innovations make a product or service more affordable and accessible, and these are key reasons for presenting this as a model of delivery of psychological services. When diagnostic procedures and interventions are first studied, they often require special skills. As the procedures develop and effects become reasonably predictable, their administration can be turned over to others (less expensive caregivers) and provided in settings (outside of hospitals and clinics) with equal or better quality than the higher cost counterparts (C. M. Christensen et al., 2009). Evidence-based treatments for anxiety (e.g., systematic desensitization, graduated exposure, cognitive behavior therapy) initially relied on a small group of researchers and clinicians (with master’s and doctoral degrees) who could implement the procedures. These are now well-established interventions that can be administered as self-help interventions or by lay counselors supervised by more trained individuals with demonstrated effectiveness (e.g., Bennett-Levy et al., 2010; Dombeck & Wells-Moran, 2006). Thus, affordability and accessibility have been reduced, although the scale of these latter extensions has been restricted.

Disruptive interventions often (but not always) are brought to people where they are. This is distinguished from the traditional model of therapy that tends to bring people to the treatment (e.g., clinic, agency, hospital). Technology and online services have allowed individuals to access services (e.g., assessment, intervention) in convenient, user-friendly, and immediate ways free from the usual barriers that can impede seeking or participating in treatment and are disruptive in that sense. The challenge in developing disruptive innovations (e.g., in mental health services) is establishing that quality is not sacrificed by making services more accessible, by delivering them with less experienced providers, or by bringing them directly to the clients. Once quality is reliably established, convenience is the next domain that is usually developed, which further increases accessibility (Christiansen et al., 2009).

**Interventions in unconventional (everyday) settings**

**Definition and background.** This model focuses on expanding care beyond traditional locales for services (e.g., clinics, hospitals, outpatient offices) and into everyday settings where people regularly attend or spend time. In this way, individuals who may need clinical services but are not receiving them through traditional venues can gain access to care. Disruptive innovations already mentioned often are in settings (e.g., pharmacies, shopping malls) that are part of everyday life. Yet, the separate treatment of everyday settings as a model is warranted because interventions in such settings have emerged from different traditions (e.g., community psychology, community mental health settings) and emphasize place (i.e., setting) rather than the nature of change (i.e., disruptive) in the innovation itself. Perhaps better stated, all disruptive health care innovations are not necessarily in natural everyday settings. Also, all interventions in everyday settings are not necessarily disruptive. As a model of delivery, interventions in unconventional and everyday settings open multiple opportunities to reach people not otherwise served. The specific settings include schools, workplaces, homes, neighborhoods, prisons and juvenile retention facilities, churches, hair salons, and barber shops, to name a few (e.g., Jürgens, Ball, & Verster, 2009; Linnan et al., 2001; Luque et al., 2011).
An example of a natural setting for physical health care is the beauty salon. Salons are an ideal setting for health education and interventions because of the large number of people who are regularly served there and because socialization and discussion of topics related to health and beauty occur regularly (Linnan & Ferguson, 2007; Solomon et al., 2004). Moreover, many individuals see their stylists and cosmetologists as trusted and supportive, making them a potential source for important information (Cowen et al., 1979; Solomon et al., 2004). Several types of health programs (e.g., mammography for breast cancer screening, cardiovascular disease prevention, education for sexually transmitted diseases) have been based in salons to promote critical health messages, specifically to the African American community (e.g., Linnan et al., 2001; Sadler, Thomas, Gebrekristos, Dhanjal, & Mugo, 2000; Wilson et al., 2008).

Typically, salon employees (e.g., stylists, cosmetologists, beauticians) provide the intervention directly to clients after receiving focused training (e.g., Lewis, Shain, Quinn, Turner, & Moore, 2002; Sadler, Thomas, Gebrekristos, Dhanjal, & Mugo, 2000; Wilson et al., 2008).

As an illustration, a stroke education program for African American women was run through beauty salons in two urban areas. Beauticians attended a brief training (conducted at a one-time luncheon) and were provided with materials (e.g., pamphlets) to provide to their clients. They then educated their clients (during regular appointments) about stroke risks, warning signs, and appropriate responses to clinical scenarios. Women who received the intervention showed improved knowledge of the signs of stroke and appropriate responses (i.e., calling 911; Kleindorfer et al., 2008). In a larger scale example, the Healthy Hair Starts With a Healthy Body Program included 700 stylists and over 14,000 clients in eight Michigan communities (Madigan, Smith-Wheelock, & Krein, 2007). Stylists attended two 4-hr training programs about kidney disease, diabetes, and hypertension and were trained to conduct two “chats” with clients. Participants in the program reported increased exercise, improved diet, and greater contact with medical professionals about related health issues. These and many other such demonstrations have shown impact of laypersons in everyday settings administering health-related interventions.

Applications to mental health. Mental health care has been provided outside of traditional settings for many years, including correctional facilities, the workplace, and schools (e.g., Roman & Blum, 1996; Rones & Hoagwood, 2000; Smith, Sawyer, & Way, 2002). Indeed, school-based preventive and treatment interventions for children and adolescents are used routinely to provide services that focus on diverse clinical issues, including conduct problems, depression, stress, substance use, and suicidality. At this point, perhaps the use of schools is sufficiently common for preventive interventions to be considered a conventional rather than unconventional setting.

We are advancing the model to look for opportunities in less-well-used settings where underserved populations can be reached. As an example of a setting in use that might be expanded, emergency mental health services are provided through mobile crisis units (e.g., Guo, Biegel, Johnsen, & Dyches, 2001). This form of care may be adapted to provide general, nonemergency care to individuals who can benefit from clinical interventions outside the context of a psychiatric emergency. For example, a family might call and schedule a visit with a mobile mental health unit because of concerns about behavioral problems at school; the unit could arrive at the family’s home (or a different predetermined location) at a scheduled time for a consultation session to address these issues. Alternatively, the crisis units may be adapted to serve mental health needs during natural disasters, similar in form and function to how mobile medical care is provided to underserved populations during such emergencies (e.g., Krol, Redlener, Shapiro, & Wajnbarg, 2007). In this case, mobile units could provide trauma screening (and, subsequently, helpful resources and referrals) and general crisis management strategies to high-risk individuals. In either scenario, high-risk and underserved populations can be targeted, and mental health care can be brought directly to the individual in their homes and neighborhoods.

The settings used in physical health care interventions discussed previously (i.e., beauty salons) provide a guide to some of the settings that the mental health field might utilize and where applications can be scaled up. Many of the characteristics that make such settings feasible for health prevention and intervention also make them suitable for mental health interventions. In fact, an existing program trains hair stylists to assess anxiety and depression symptoms and assists them in providing appropriate referral information to clients (Hanlon, 2011). If such programs were extended to the many beauty salons in the United States (estimated to exceed 300,000; Rudner, 2003), the potential reach of treatment to people who do not receive services would be a significant beginning.

Key considerations. Among the many benefits of treatment in everyday settings (see Table 1), the possibility of reaching people who are unlikely to seek services through conventional resources and settings is worth underscoreing. With disruptive innovations, we noted that treatments are often brought to individuals rather than bringing individuals to treatment (e.g., clinic, hospitals). Everyday settings might be conceived as a compromise of sorts—people still have to go places (beauty parlors, nail salons, parks, playgrounds, restaurants, coffee shops, shopping malls, grocery stores), but they go there anyway for other reasons. Treatment is brought to these settings and to the people, which could be especially useful for those who are not seeking their primary care physicians for advice and, of course, for those who do not have primary care physicians.

Everyday settings could be used to target special populations based on the settings that different groups are more apt to attend. As a model of care, everyday settings offer several additional benefits. Among them is the use of lay providers (e.g., hair stylists, teachers) instead of traditional mental health care providers.
professionals. This reduces the costs associated with care and increases the ability to scale up a workforce to reach people in need, in keeping with the emphases of task shifting.

There are challenges in moving treatments to everyday settings, related to the settings themselves (e.g., some settings are better suited to interventions than others) and to the interventions (e.g., some types of treatments may be more readily administered in natural settings). Promising intervention settings might include repeated contacts or visits (e.g., a setting that people go to on a regular basis so that services and some follow-up can be included), reputable and reliable providers (e.g., individuals that clients will trust and consider credible sources), and suitable duration and privacy of the interaction. In spite of the challenges, this model has special opportunities to move treatments to people in novel ways and to target underserved populations based on the settings selected.

**Best-buy interventions**

**Definition and background.** Economics of health care have added to the impetus to identify novel models of providing services. A survey of world business leaders by the World Economic Forum indicated that chronic disease (e.g., cardiovascular disease, cancer) is a major threat to economic growth globally (Bloom et al., 2011; WHO, 2011b). Disability and mortality exert great economic impact not only on individuals, families, and households but also on industries and societies through consumption of health care services, loss of income, productivity, and capital expenditures that could otherwise support public and private investment. Best-buy interventions have emerged from this context to designate interventions for physical illnesses, particularly the control of chronic diseases globally (IOM, 2010).

Best buy refers to an intervention for which “there is compelling evidence that is not only highly cost effective, but is also feasible, low-cost (affordable), and appropriate to implement within the constraints of a local health system” (WHO, 2011a, p. 2). Best buy also includes features such as appropriateness for the setting (e.g., culture, resources), capacity of the health system to deliver a given intervention to the targeted population, technical complexity of the intervention (e.g., level of training that might be required), and acceptability based on cultural, religious, and social norms. Impetus for delineating best-buy interventions was an effort to help countries and policymakers make difficult choices on how to allocate resources for health care (WHO, 2011a). In addition to best buys, “good buys” are occasionally distinguished and refer to interventions that do not meet all the criteria for feasibility of delivery and cost but represent an expanded set of interventions that can be made available as resources allow.

Delineating evidence-based best buys was conceived as an economic tool to help countries assess how to achieve a given amount of change, given the number of eligible individuals in need of the intervention, the potential savings of those changes, and the cost differences of alternative strategies, among other variables (e.g., Chisholm, Lund, & Saxena, 2007; Chisholm & Saxena, 2012; WHO, 2011b). The best-buy interventions can vary for a given disorder and country because the cost of delivering a particular intervention in light of the health resources and infrastructure will vary. However, best-buy interventions have been delineated that are likely to have broad applicability across countries.

For example, in one analysis four criteria (health impact, cost-effectiveness, cost of implementation, and feasibility of scaling up) were used to identify best-buy interventions that would have significant public health impact on noncommunicable diseases, including cardiovascular disease, cancers, diabetes, and chronic lung disease (WHO, 2011a). Best buys for cardiovascular disease and diabetes were counseling, multidrug therapy, and aspirin. These were selected in light of the reduction of disease burden (e.g., DALYs, as defined in Note 1) and very low cost. A good-buy intervention was counseling for diabetes control for individuals over 30 whose risk of fatal events was especially high. The intervention would be quite cost-effective, but it has a higher cost (less affordable) to deliver and is not feasible in many countries.

**Applications to mental health.** We mentioned previously the intricate relations of mental and physical health. Several best-buy interventions for physical diseases often focus on domains of functioning that overlap with and are part of behavior, lifestyle, and mental health. For example, reducing tobacco and alcohol use and increasing healthy diets and physical activity are the foci of best-buy interventions for cardiovascular disease, cancer, diabetes, and chronic lung disease (WHO, 2011a). For tobacco use, raising taxes, protecting people from tobacco smoke, warning about the dangers associated with tobacco, and enforcing bans are estimated to save more than 5 million deaths in 23 large low- and middle-income countries over a 10-year period (see WHO, 2003). Similarly for alcohol use, best-buy interventions included enhanced taxation of alcoholic beverages and comprehensive bans on advertising and marketing, based on their favorable cost-effectiveness, affordability overall, and feasibility. Excessive alcohol use was identified for best buy for reducing the incidence of cardiovascular diseases and cancers but extends to other burdensome conditions (e.g., cirrhosis of the liver, depression, traffic injuries and deaths; WHO, 2011a). It is likely that many best buys for physical health will have added benefits and cost savings in light of their favorable consequences for mental health.

More explicit designations of best buys have been identified for select mental disorders. For example, for clinical depression, generically produced antidepressant medication, brief psychotherapy, and treating depression in primary care qualified as best buys (Chisholm et al., 2007). For psychoses, treating people with antipsychotic drugs and with psychosocial support is regarded as a best buy. Controlled trials of best buys demonstrating their utility, scalability, and impact relative to treatments as usually conducted are not yet available.
from resources we could identify, and systematic research in this area may yield surprising results about what interventions actually warrant a best-buy designation.

**Key considerations.** As noted in Table 1, best-buy interventions emphasize cost-effectiveness, feasibility, affordability, and scalability. Clearly, economic considerations play a central role. For example, in an evaluation from the United Kingdom, an expenditure of 1 British sterling (£; approximately US$1.50) for intervention was estimated to save 5.0£ and 7.9£ (approximately US$7.50 and US$12.00) for early diagnosis and treatment of depression and conduct disorder, respectively (Knapp, McDaid, & Personage, 2011). Estimates such as these are based on long-range benefits and savings (i.e., over the life of the individual and for the period in which the intervention will be administered to the population). Scalability and feasibility also raise economic considerations. Can the intervention be delivered with available funding given the large swaths of people in need and to the locales (e.g., rural areas, desert or mountain regions) where delivery is needed?

Best-buy interventions are based on estimates of utilization and impact. The importance of direct empirical tests is well recognized once interventions are implemented. For example, best-buy interventions administered on a large scale have been used to improve health and educational performance in rural China (Rural Education Action Project, 2012). Rural youth have high rates of iron deficiency anemia, are nearsighted but do not have glasses, and are infected with worms—all of which have been associated with problems of concentration in class and lower cognitive functioning, which limit educational progress and contribute the continued cycle of poverty. A best-buy intervention used lay individuals to counsel in nutrition practices and provided eyeglasses, multivitamins with iron, and deworming medication. RCTs (with wait-list controls) revealed that the intended benefits were in fact achieved (e.g., Luo et al., 2011).

Direct tests are critical to ensure that well-intended, feasible, and scalable interventions yield the intended outcomes and in fact are best or at least good buys. Also, as in any large-scale intervention, sustaining the integrity of the intervention can be a challenge. Interestingly, some of the best-buy interventions (e.g., selective taxes, bans on advertising for substance use and abuse) differ from the usual psychological interventions and do not require individual compliance or adherence to a regimen. We include best buy as a model from which to select among evidence-based intervention options.

**Lifestyle change**

**Definition and background.** Lifestyle change or therapeutic lifestyle change refers to intervention efforts that modify high-risk behaviors to reduce disease mortality and morbidity (American College of Lifestyle Medicine, 2009; Egger, Binns, & Rossner, 2008; National Center for Chronic Disease Prevention and Health Promotion, 2011). We use lifestyle change broadly to include a range of behaviors in which individuals can or do engage that positively affect health. Common exemplars are controlling diet, exercising, reducing or eliminating consumption of alcohol and nicotine, and participating in activities that can reduce stress, improve functioning, and alter physical or mental health.

Lifestyle interventions have targeted behaviors, such as smoking, alcohol consumption, diet, and exercise, in light of their association with common chronic diseases and conditions, such as cardiovascular disease, diabetes, and obesity. Yet diverse physical ailments benefit from lifestyle change: cancer, chronic pain disorders, fibromyalgia, dyslipidemia, multiple sclerosis, osteoarthritis, osteoporosis, and rheumatoid arthritis (American College of Lifestyle Medicine, 2009). Often lifestyle changes are part of a larger treatment regimen (e.g., involving medication or surgery), or multiple lifestyle changes are included as a package (e.g., improved diet, exercise, and weight management; National Center for Chronic Disease Prevention and Health Promotion, 2011). However, growing evidence suggests that lifestyle change alone can have a remarkable impact on physical diseases. For example, an RCT for men with early-stage prostate cancer (who had chosen surveillance rather than conventional interventions) found that individuals who engaged in a lifestyle change program that included changes in diet, exercise, and stress management were less likely to require conventional treatment (e.g., prostatectomy, radiotherapy) than similar patients who were receiving routine care (Frattaroli et al., 2008). These results were obtained at both 1 and 2 years of follow-up, suggesting that conventional treatments (and the associated physical, psychological, and financial costs) can be significantly delayed or avoided completely in some circumstances.

**Applications to mental health.** Lifestyle changes have had favorable impact on symptoms of many psychological disorders, including depression, anxiety, schizophrenia, eating disorders, body dysmorphic disorder, substance use disorders, and cognitive dysfunction in physical disorders (e.g., Alzheimer’s disease; Ströhle, 2009; R. Walsh, 2011). The most frequently used lifestyle changes are exercise and nutrition as applied to physical health. Yet, lifestyle has been extended to include a variety of other activities, such as spending time in nature, engaging in recreational activities, being involved in religious or spiritual activities, and volunteering and contributing to others, each with evidence on its behalf in relation to improving physical and/or mental health (R. Walsh, 2011).

Depression provides an example of how lifestyle changes can have significant impact on clinical dysfunction. For many years, psychologists have incorporated some aspects of lifestyle change and various activities into treatment for depression (e.g., Dimidjian et al., 2006; Lewinsohn, 1975). The specific activities are individualized but usually focus on exercise, social engagement, and recreational activities (e.g., Leahy, Holland, & McGinn, 2012). Lifestyle changes alone or in combination with other interventions are effective for...
treating mild to moderate depression and similar in their effects to medication and psychotherapy (e.g., Rimer et al., 2012; Tkachuk & Martin, 1999). In fact, when compared to a commonly used selective serotonin reuptake inhibitor, aerobic exercise (40 min, three times a week) was associated with lower rates of relapse at 6-month follow-up (Babyak et al., 2000). Although much of this work has been conducted with adults, applications have extended to children, adolescents, postpartum adults, and the elderly (e.g., Hamer & Chida, 2008; Larun, Nordeim, Ekeland, Hagen, & Heian, 2006; Sidhu, Vandana, & Balon, 2009).

Key considerations. Table 1 conveys key characteristics of lifestyle changes in relation to other models we presented. One of the most compelling advantages of lifestyle change is the broad impact that such change can have. For example, increased physical exercise can have multiple beneficial physical health outcomes (e.g., improved cardiovascular health, reduced risk for obesity, metabolic disorders, and cancer) and mental health outcomes (e.g., fewer depression symptoms, reduced stress levels and anxiety, decreased substance use, improved neurocognitive functioning; e.g., Brown et al., 2010; Deslandes et al., 2009; Dunn, Trivedi, Kampert, Clark, & Chambless, 2005; McMorris, Tomporowski, & Audiffren, 2009). The broad effects on general well-being and physical and mental health translate to reduced use of other health services and are likely to make lifestyle changes a best-buy intervention.

Other noteworthy benefits of lifestyle changes are affordability (initial outlay of costs), cost-effectiveness (e.g., impact in relation to few initial costs for many activities), flexibility (e.g., lifestyle changes include multiple options that can be selected for convenience and personal preferences), and wide applicability (e.g., individuals with diagnosable or subclinical psychological problems can benefit). Lifestyle changes may also remove barriers to treatment (e.g., stigma, lack of nearby services) for individuals seeking mental health services (Corrigan, 2004; Pescosolido et al., 2010).

Many distinct activities and practices are encompassed in the term lifestyle change; many psychological and physical health goals can be the targets of such changes; and individuals of different ages and stages (e.g., children, the elderly) can benefit from them. That very diversity of activities and practices may make this especially important as a model of addressing mental health and reducing the burdens of mental illness. An advantage of lifestyle changes is the range of options beyond the familiar focus on exercise, diet, and reduced alcohol consumption and beyond what the public knows or what businesses are likely to promote in their interests in controlling health care costs. Also, lifestyle activities can be used where individuals are in their everyday lives (e.g., daily routine, no special facilities) or in facilities (e.g., gyms, parks, churches) that do not have the barriers (perceived and real) associated with seeking mental health treatment. Lifestyle interventions are offered in everyday settings (e.g., schools for children and adolescents, workplace for adults) and might be the first line of larger scale interventions and as self-help or minimal lay counselor–assisted interventions.

Many of the challenges are familiar, such as getting individuals to adopt and adhere to lifestyle changes (e.g., exercising regularly). Novel aids (e.g., apps that facilitate monitoring activity in real time) may assist in providing feedback, encouragement, and records of accomplishment. Because lifestyle changes are not routinely seen as mental health treatment, basic questions of such treatments have few answers (e.g., what lifestyle changes, for what problems, in what doses). Nevertheless, existing evidence conveys important mental health benefits, including alleviation of clinical dysfunction. As such, lifestyle changes could have a major impact on the burdens of mental illness if they were systematically scaled up.

Social media

Definition and background. Social media refers to content that is widely available to the public and includes, as primary examples, Web logs (blogs), social networking Web sites (e.g., Facebook), collaborative projects (e.g., Wikipedia), user-generated content communities (e.g., YouTube), virtual social worlds (e.g., Second Life), and virtual games (Kaplan & Haenlein, 2010). These media vary in social dimensions (e.g., the amount of personal information that a user can disclose) and media richness (e.g., the type of media content allowed by the application). We highlight Internet-based applications to convey some of the possibilities from this large category. Yet, social media have a broad range of options, and they continue to proliferate (e.g., Bennett-Levy et al., 2010).

Advances in social and communication technology are increasingly part of daily life in light of an array of devices (e.g., smartphones, tablets), multiple options for communicating (e.g., texting, e-mail, Facebook), and software of all kinds that bring immediate access to virtually every facet of human functioning (e.g., health care, religion, entertainment, work, news). These technological advances have fostered cultural changes in ways of communicating, socializing, obtaining information, and accessing resources (Campbell & Park, 2008; Ling, 2004). For example, social networking Web sites bring individuals into contact with one another in novel ways but also change the frequency and intimacy of those contacts. One can instantly share news, information, photos, and videos with large groups of people all across the world and quickly receive rich feedback on the shared materials. Meetings and connections are much more “person based,” as individuals are accessed and engaged in interactions wherever they are (Campbell & Park, 2008). This is distinguished from “placed based,” such as meeting at one’s home, at a gathering, or at a restaurant.

In health care, social media are used in many ways. For example, public health officials use social media (e.g., Twitter) to track flu-like symptoms, predict patterns in influenza outbreaks, and use that information to respond to minimize danger (Schmidt, 2012; Signorini, Segre, & Polgreen, 2009). Social media are used in many ways. For example, public health officials use social media (e.g., Twitter) to track flu-like symptoms, predict patterns in influenza outbreaks, and use that information to respond to minimize danger (Schmidt, 2012; Signorini, Segre, & Polgreen, 2009).
2011). In terms of direct patient care, social networking sites have been used to create thousands of different support groups for diverse physical health problems (e.g., breast cancer, colorectal cancer, and diabetes; Bender, Jimenez-Marroquin, & Jadad, 2011; De la Torre-Díez, Díaz-Pernas, & Antón-Rodríguez, 2012). Users can share messages with one another and increase awareness (e.g., prevention, early detection) of critical issues. The groups also provide access to support for individuals who might not otherwise have access to a support network or whose access might be limited by personal or geographical barriers.

Applications to mental health. Social media can provide interventions at the intersection of technology and social interaction. For example, blogging (i.e., writing regularly on a blog) might be viewed as another medium for delivering one of the many evidence-based expressive writing interventions (e.g., for trauma; Frattaroli, 2006; Pennebaker, Mehl, & Niederhoffer, 2003). Individuals who maintain blogs report having a large group of friends and high rates of perceived psychological support (Baker & Moore, 2008). Among adolescents with social difficulties (e.g., problems with peer relationships, inadequate support from friends), regularly writing on a blog for 10 weeks (compared with keeping a nonblog computer journal or a no-treatment control group) improved self-esteem, reduced social-emotional distress, and increased engagement in social activities (Boniil-Nissam & Barak, 2011).

The very nature of social networking Web sites (e.g., sharing thoughts, feelings, information with others) can make it an ideal forum for identifying high-risk individuals and those in need of mental health resources. In Taiwan, a recently developed program used Facebook as a means of assessing suicidality risk in adolescents (Chiang et al., 2011). After authorizing the program to access some of their personal information (e.g., location, age, gender, e-mail address), adolescents were prompted to complete a brief (five-item) questionnaire about suicidal feelings. This information was stored in a database, and adolescents who were determined as being high risk were contacted by mental health professionals and were provided resources or ongoing services through the Internet. This use of social networking can facilitate both screening mental health problems and coordinating services for individuals who may not otherwise have access to care.

A growing area of research focuses on the use of virtual social worlds (e.g., Second Life) as a “setting” for psychological intervention and support (Gorini, Gaggioli, Vigba, & Riva, 2008). Some aspects of these treatment programs closely parallel in-person therapy. For example, a therapist and client can “meet” regularly for sessions in a virtual social world, with the client’s avatar and a therapist’s avatar interacting through such meetings. This type of treatment offers some of the same benefits of other Internet-based treatments (e.g., increased accessibility to rural areas) as well as some unique benefits, such opportunities to easily create a community of supports in the virtual world. Outcome research, still relatively sparse, shows that effect sizes of virtual therapy are similar to those obtained in more well-studied person-based treatments (Yuen et al., 2012). Access to extensive support services (through the online community and not a mental health professional) is an important feature of some forms of virtual therapy. In fact, researchers are creating expanded support communities in virtual social worlds for patients with diagnoses (e.g., borderline personality disorder) that have demonstrated significant benefits from support through a therapeutic community (Good, Gnanayutham, Sambhanthan, & Panjganj, 2011).

Key considerations. Social media have several characteristics that make them a model of delivery worth highlighting (see Table 1). Among their unique characteristics is the opportunity for rapid connectivity. Blogs, social networking sites, and other uses of technology allow for information to travel quickly and be easily accessible to users. For example, when Facebook made it possible for users to easily see if other users were organ donors and, if interested, to sign up to be donors, the number of organ donors increased substantially (by 700% in some states) within days (Goldman, 2012). One could envision how critical mental health information, such as depression screenings, might be made widely available through social networking sites. Furthermore, because of the opportunities for self-disclosure and general sharing of information and resources, several social media outlets provide opportunities to increase general public awareness about mental health issues and may serve to destigmatize treatment seeking.

The social component can positively influence behavior. Knowing that others can see and track one’s activities (and seeking and tracking the activities of other people) can change attitudes, influence behavior, and foster seeking and obtaining support. For example, a Web-based health promotion program focused on helping individuals make small positive changes to improve their overall health (Poirier & Cobb, 2012). Users could make social connections (through the Web site) with other users. The individuals with more social ties were more engaged in the intervention based on self-reported behavior change and use of the Web site and its resources.

The pervasive use of social media and emerging technologies might make this model of treatment delivery rich in options going forward. Technological advances bring familiar and novel challenges. Among them are privacy protections and encryption of material. These are significant challenges outside the context of mental health and therapy, and these latter uses give new meaning to “identity theft.” Technology will continue to advance in these areas. Social media as a model of delivery greatly expand the reach of psychological interventions, and expanding on both the intervention technique options within this model of delivery and the client protections is critical.

Other models and variants within a model

We have identified several models of providing but also conceptualizing psychological services that are not part of
mainstream delivery of services and that might be used to reach those who are underserved. We selected models to illustrate a range of options but did not intend to present all possible models. Indeed, within the models that we did cover, we could not begin to elaborate the options. For example, lifestyle changes encompass many interventions (e.g., use of meditation, spirituality, volunteering to help others), some of which include their own literatures and evidence as effective ways of addressing mental health (see L’Abate, 2007; R. Walsh, 2011). Similarly, everyday settings include a plethora of options for individuals of different ages and with varied interests, and we merely illustrated a couple of locales.

Apart from not elaborating all options within a given model, other models on the horizon might have been included too barring space considerations. For example, social robotics refers to a growing interdisciplinary field that incorporates aspects of traditional robotics, computer science, engineering, communications, and psychology (Hegel, Muhl, Wrede, Hielser-Fastabend, & Sagerer, 2009). Social robots exhibit human social characteristics, including emotional expression, communication skills, and nonverbal cues, and are engineered to follow social norms that facilitate engagement in human interactions (Fong, Nourbakhsh, & Dautenhahn, 2003). Already social robots have been applied to health care, as in the case of Autom, a robot that serves as a weight-loss coach and provides feedback about health, tracks weight loss, and engages in small talk and conversations that can be individualized (Ackerman, 2011; Kidd & Breazeal, 2008). In mental health care, applications with autism spectrum disorder take advantage of the social robot’s ability to interact with a child, to engage in joint attention tasks, and to model as well as respond to social cues (e.g., Atherton & Goodrich, 2011; Ricks & Colton, 2010; Scassellati, 2005). Mounting evidence suggests that social robots, most often in the form of a pet (e.g., robotic dog) or another animal (e.g., seal [sans water]), can indeed be useful therapeutic tools by reducing loneliness and depression, increasing observed social interaction, and altering stress hormone levels (Banks, Willoughby, & Banks, 2008; Wada & Shibata, 2007; Wada, Shibata, Saito, Sakamoto, & Tanie, 2005). Social robotics is a fast-developing area and no doubt will make mental and physical health services available in novel ways.

Yet, another model on the horizon derives from contemporary research on social networking and contagion. Considerable research has linked physical and mental health problems (e.g., obesity, substance abuse) to social groups, contagion, and peers (Christakis & Fowler, 2007; Valente, 2003). Interventions are emerging that use networks strategically for therapeutic ends and diffuse intervention effects (e.g., lifestyle changes) at a group level (i.e., network) rather than an individual level (see Valente, 2012). The novelty of social networks will be to intervene at the level of peer groups (e.g., schools, communities) and in ways that could be used for treatment and prevention. Social robotics and social networking add to options that might extend the reach of mental health interventions. For this article, we could not cover all options to extend models of delivery. We selected a sample already in use in health care and provide options that could reduce the burden of mental illness if added to the dominant models of delivery within the mental health professions.

### General comments

Four points are important to underscore about the models we presented. First, the models derive from different disciplines and historical contexts but have overlapping features. For example, task shifting, best buys, and treatment in everyday settings often rely on lay caretakers and deliver the interventions where people function in their daily lives. These commonalities might be viewed and further developed as components of models, in the same way that components or common elements of evidence-based treatments have been culled from multiple treatment techniques (e.g., Belkin et al., 2011; Chorpita & Daleiden, 2009). These commonalities might be considered as a template to which effective interventions might be added.

Second, the models that we presented might be dismissed as nothing new or newsworthy and in that sense not “novel” at all. Task shifting and disruptive innovations, for example, have a history going back decades. Certainly, using lay counselors or paraprofessionals in the community (e.g., community psychology) has an extensive history as well (e.g., Sarason, 1974). Yet, the models have evolved, and their methods of delivery have taken on new urgency in light of global priorities in addressing the burdens of physical and mental illness and greater recognition of their connection. Also, the models rely increasingly on evidence-based interventions in the context of both physical and mental health care (e.g., treatments for HIV, cognitive therapy for depression). By and large, the models we discussed have received little attention in delivery of psychological services from the mental health professions. The models highlight new opportunities and treatment delivery options that can greatly extend the ways of providing services.

Third, we are not advocating or dismissing any particular model. We believe that a portfolio of models is needed (i.e., several models with overlapping reach that can cover the swaths of individuals in need services) as noted elsewhere (Kazdin & Blase, 2011). The dominant model of one-to-one, in-person treatment has established itself as able to deliver effective, evidence-based treatment but unable or less able, at least so far, to reach most individuals in need. Other models are needed to improve coverage of large swaths of underserved individuals.

Fourth, we limited our discussion to the presentation of models and omitted critical topics, such as how they might be deployed. The sequencing or delivery order of interventions and, perhaps, the models of delivery as well are very important. That is, what are the first lines of intervention or model of delivery? We would like to provide a lower cost, easily
accessible, and highly scalable intervention first, then proceed to a more effortful, costly, and difficult-to-administer intervention only when needed. The notion of stepped care reflects this sequencing and has been discussed frequently (e.g., Haaga, 2000; L’Abate, 2012; O’Donohue & Draper, 2011). Deciding the sequencing of models of delivering treatment and the specific techniques is no less important than the models themselves.

There has been such excellent progress in identifying evidence-based psychosocial treatments. We extend the empirical approach and spirit of that progress by advocating for evidence-based models of delivery. Each model will raise its own challenges and barriers, but that variation among models will allow multiple options for delivering and receiving treatment and for making psychosocial interventions accessible. Moreover, many of the challenges and barriers of the models we highlight already have the benefit of experience and evidence-based guidelines for implementation (Patel, Chowdhary, Rahman, & Verdeli, 2011; WHO, 2008).

Challenges in Moving Toward Novel Models

We focused on opportunities for expanding models of treatment delivery to showcase several options. We do not wish to imply that the model of treatment delivery is the sole challenge for improving mental health in the United States.

Communication and mental health literacy

Utilization of services, no matter what the model of delivery, will require better public understanding of the need for, benefits of, and access points to these services, a domain referred to as health literacy (IOM, 2004). Generally, the public is more aware of early signs of physical maladies (e.g., HIV, cigarette smoking) and their consequences and options for prevention and treatment than they are of signs of mental illness. Mental health literacy refers to a broad area of the public’s knowledge and beliefs about mental illnesses, including signs, characteristics, and methods of treating or preventing them (Jorm, 2012).

Failure to recognize the presence of a disorder or, if recognized, to identify options for intervention is an obvious impediment to delivering services. For example, among people who seek treatment for anxiety or depression, considerable time elapses (mean = 6.9 years) to recognize that the disorder is present and additional time (mean = 1.3 years) to seek treatment (Thompson, Issakidis, & Hunt, 2008). Multiple surveys show that the majority of the public does not recognize various psychiatric disorders (see Jorm, 2012, for a review). Accurate information about disorders and intervention options is related to help seeking. Among the challenges in promoting new models of treatment delivery is to help the public understand mental illness, the early signs, and what can be done to prevent, treat, and mitigate sources of dysfunction. The models of delivery that we discussed can make treatment much more accessible to more people in need of services. Yet, accessible treatments will have impact only if they are accessed.

Efforts to improve mental health literacy have been effective. For example, at different levels (e.g., country-wide, single or multiple cities; Australia, Germany, and Norway, respectively), efforts have included intensive information campaigns and have improved literacy about disorders and help seeking, but impact on actual help seeking is less clear (Jorm, 2012). Communication efforts may require reaching many members of a community so that individuals are influenced by a social network (e.g., neighbors) with others who know and discuss available interventions (cf. Valente, 2012). Also, communication campaigns may act synergistically with other influences, including the availability of more accessible interventions, and in that way contribute to enhanced access to care (IOM, 2010). Much has been learned about strategies, dose-response effects of varied communication strategies, and how they exert impact (see IOM, 2010; Hernandez & Landi, 2011).

Novel models of treatment delivery will require continued efforts to increase mental health literacy. The use of multiple models of delivery can make the task more challenging because more options are available for receiving psychosocial interventions. Yet, those same models may make treatments more accessible directly by fostering communication among peers (e.g., neighbors, lay health care workers) and providing intervention in settings with which potential consumers are already familiar. Some of the models we highlighted (task shifting, disruptive innovation, treatment in everyday settings) bring treatment to where the people are, and those same models may enhance efforts at improving mental health literacy.

Assessment and monitoring

Initiatives in global health have underscored the pivotal role of assessment of clinical dysfunction in effective treatment and prevention (e.g., National Health Information System; WHO, 2004). Among the reasons, assessment is designed to help policymakers make informed decisions about services that could affect large swaths of individuals as interventions are scaled up. Whether incidence and prevalence are reduced and whether daily functioning is improved are empirical questions and presumably apply to any model of delivering preventive or treatment services.

In some of the models highlighted earlier, the strong assessment component was not described. For example, in best-buy interventions, the process begins assessing the needs (e.g., scope of clinical dysfunction) and capacity of the setting (e.g., infrastructure and resources that might be used). Interventions are then designed that are identified as likely best buys (IOM, 2011b). Assessment continues by monitoring costs, fidelity of implementation, and clinical outcomes to confirm, among other things, that the desired outcomes are achieved and ultimately whether best buys in fact are best buys. Similarly, in task shifting, well-developed methods evaluate the effects of
training lay caregivers, the fidelity of treatment delivery, and impact on disorder (WHO, 2008).

Achieving the goals of reaching more people in need and reducing the burden of mental illness would profit from, if not require, national monitoring and surveillance on a regular basis. Several models of large-scale assessment models are already in place in the United States and illustrate possibilities on which to build (e.g., Centers for Disease Control and Prevention, http://www.cdc.gov/yrbs; National Comorbidity Study, http://www.hcp.med.harvard.edu/ncs/; Institute for Health Metrics and Evaluation [Murray & Frank, 2008]). The required step is to integrate assessment with models of treatment delivery. We mention assessment because of its central role to achieving the aims toward which this article was directed, namely reducing the burdens of mental illness. More models and different models of delivery are needed, but the data on impact are the arbiter of the value of these models in both reaching individuals who are not otherwise served and achieving impact on critical outcomes.

**Moving forward to expand models of delivery**

Applying novel models has multiple challenges, and describing viable options does not imply that adoption could begin now. Among the weighty issues that govern treatment delivery are financing of health care, legislation, social policy, and regulations and oversight at multiple levels (e.g., federal and state regulations; professional organizations). These issues and barriers in delivering and receiving services are beyond the goals of the present article. Considerable work has been done in identifying such challenges and setting priorities. Here we take up one question briefly: How do we move “here” (dominance of a treatment delivery model that serves as the focus of training, research, and clinical practice) to “there” (expansion of multiple models of delivery that are not covered, included, or advocated in training or research)? For example, in clinical psychology, accredited doctoral programs provide clinical training in psychotherapy (individual, family, group) administered in person and require a year of internship where such experience continues. The model of delivery has continued for decades and continues as part of training and licensing. How might changes come about to expand the range of models for delivering treatment?

Charting how such changes often come about has been articulated and illustrated in the context of disruptive innovations (C. M. Christensen et al., 2009) and other areas where research moves from developing effective interventions to their larger scale application (e.g., agriculture, health, manufacturing and business, technology; Rogers, 2003). The usual path is change from without (i.e., noncompetitive services or products emerge that are outside the system), examples of which we gave earlier. Over time, as they become more convenient and accessible, they are applied more widely and cause change in traditional views of how things are effectively done. Some of this already is evident in mental health services. Online and self-control therapies, many with a strong evidence base, are still not competing with local therapists in town, and we are not advocating that they ought to. Yet, as the evidence base of such interventions is more widely discussed and developed, presumably treatment techniques and the models through which they are delivered will be extended and eventually incorporated more often into training and services.

**Conclusions**

The article focuses on models of treatment delivery directed toward reducing the burdens of mental illness and related conditions. The models are designed to provide affordable and accessible interventions to reach the large swaths of individuals in need of psychological services but who do not receive them. Inability of the dominant model to reach most individuals in need, systematic disparities in who is served by this model, and soaring health care costs are among the reasons to expand the models of delivery. Indeed, novel approaches to treatment (e.g., peer based, use of lay workers, Internet and phone based) increasingly are advocated precisely with these reasons in mind (e.g., Heisler, 2006; Muñoz, 2010; Rotheram-Borus et al., 2012; Sarasohn-Kahn, 2012). Models we highlighted build on this larger movement to expand the reach of psychological interventions.

We reviewed models that have as their point of departure the goal of scaling up interventions so they can reach many people in need, expanding the workforce as needed to permit that, and bringing interventions to individuals. Applications in physical health care have shown the viability of diverse models in situations where many individuals with a particular clinical problem cannot receive the traditional model of delivery (e.g., coming to a clinic where a highly trained professional provides care). The models we reviewed address many of the delivery challenges surrounding physical health care and have begun to be extended to mental health care (e.g., Belkin et al., 2011; Patel et al., 2010; Patel et al., 2011). These applications convey that the use of the models is not wishful or wistful thinking. In addition, many of the issues for applying models (e.g., training; supervision; ensuring fidelity of treatment delivery; sustaining a lay workforce; integrating culture, ethnicity, and diversity into delivery) have empirical literatures on which we could draw to move forward.

There are broader advantages to extending the reach of mental health services. We focused on reducing the burdens of mental illness broadly conceived. The statistics we cited (e.g., 25% of the U.S. population meets criteria for at least one psychiatric disorder in a given year) might well be considered an underestimate of the scope of dysfunction. We did not consider “subclinical” dysfunction for which impairment and symptoms fall below a diagnostic threshold. These dysfunctions might be more readily addressed if there were low-cost, highly accessible interventions that could be scaled to reach large numbers. Indeed, a recent demonstration with subclinical depression using e-mail-based self-help indicates the
effectiveness of such an intervention (Morgan, Jorm, & Mackinnon, 2012). Treating subclinical or subthreshold dysfunction might have preventive benefits too because subclinical symptoms are a risk factor for onset of dysfunction.

Apart from subclinical dysfunction, we know from recent national survey data that most individuals in the United States experience moderate to high levels of stress (American Psychological Association, 2012). In addition, various other psychological conditions, experiences, or states (e.g., social isolation and loneliness) are not diagnosable but take their toll on both subjective well-being and physical health (e.g., Cacioppo & Patrick, 2008). More accessible and affordable interventions brought to individuals in more convenient ways might help psychological functioning among a variety of individuals who would profit from but not otherwise seek intervention. Impetus for the article was considering models of treatment delivery that would help reduce the burdens of mental illness, but those models might reduce some of the burdens of the periodic challenges that many—most of us—experience even though our reactions may not rise to the level of a diagnosable disorder.

We did not discuss the benefits of extending mental health services on physical health. Reducing the burden of physical illness requires attention to and depends on the reduction of mental illness and vice versa (Prince et al., 2007). Recently, for example, addressing mental disorders has been regarded as “the missing link” to effective HIV prevention, care, and treatment (National Institute of Mental Health, 2012). Psychiatric impairment, particularly depression, is prevalent among individuals living with HIV (30%–50% of the people), and mental illness influences access to care, seeking treatment, treatment adherence, untoward levels of disease markers, and higher mortality rates. Our article has argued for the need of novel models of delivery to reduce the burdens of mental illness, but reducing those burdens and some of the models we have discussed can have important implications for the burdens of physical illness as well.

We know now from improved and more comprehensive epidemiological research that the burdens of mental illness are enormous, that our well-developed evidence-based treatments are not reaching individuals in need, and that merely extending our evidence-based treatments to clinical practice with the dominant model currently in use will not have the needed impact. It is not the treatment techniques per se that are the main issue but rather their use in a model that is not accessible or affordable and cannot be easily scaled up to reach people in need. Multiple models of delivery, some already shown to be scalable, to reach large swaths of individuals in need are available. If we begin with the goal of reducing the burdens of mental illness, we include individual psychotherapy and new variants (e.g., delivered online, delivered via self-help). But we attend to other models too and evaluate our progress on prevalence and incidence of dysfunction and daily functioning on a national scale and ultimately across many nations. The goal of this article was to foster consideration of novel models that could make a difference in mental health; some of these models already have in other contexts with similar barriers in delivering health care.

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Notes
1. Disability-adjusted life year (DALY) is a measure of disease burden reflected by the estimated number of years lost owing to ill health, disability, or premature death. One DALY = 1 year of health life that is lost based on life expectancy. This is a measure used to provide a single estimate of the burden by combining both morbidity and mortality (see World Bank, 1993, for details).
2. Not all therapies focus on the individual. Group (e.g., 8–10 individuals), family, and couples therapies, for example, involve more than one individual. These slightly expanded foci share the one-to-one (unit rather than person) treatment delivered by a trained mental health professional and are in keeping with the dominant model. Adding a small number of individuals does not achieve objectives toward which this article is directed (i.e., novel models to reach the large swaths of individuals who are in need of services but do not receive them).
3. Task sharing is a related term that is sometimes used interchangeably with, but occasionally distinguished from, task shifting. Sharing, when distinguished, can mean lesser trained individuals working with professionals (e.g., A. Walsh, Ndubani, Simbaya, Dicker, & Brughal, 2010), but the distinction is not consistently made or required for this article.
4. Several such initiatives that focused on mental health include Grand Challenges in Global Mental Health Millennium Villages Program, Integrated Innovations for Global Mental Health, Collaborative Hubs for International Research on Mental Health in Low- and Middle-Income Countries, Program for Improving Mental Health Care, among others (see Belkin et al., 2011; Patel, Chowdhary, Rahman, & Verdelli, 2011; http://grandchallengesgmh.nimh.nih.gov/about.shtml).
5. The term disruptive innovation is based on the fact that the new product or service “disrupts” an existing market by changing who is served and how the service is provided. The disruption makes things simpler and more affordable. The disruption might not be to consumers but rather to established companies or markets. For example, digital cameras and photography “disrupted” the market for, and the business based on, film (chemical) photography. The former has not eliminated the use of film, which is not the issue in disrupting the market, but it has clearly led to a qualitative change in how most people take photos. Technology was the initial term used, but it gave way to innovation. As illustrated with further examples, innovation better captures the breadth products and services, some of which do not require a change in technology.
6. The unique and important role of beauty salons in the African American community has been well documented (e.g., Gill, 2010). Salons have been centers of economic, social, and political change, and beauticians were catalysts for social activism. For example, during the civil rights movement, beauticians registered their customers to vote and spread information about political rallies and demonstrations. This rich historical context has left the African American beautician or stylist in a valued leadership role and as an ideal messenger of critical information about a variety of topics, including health (Linnan & Ferguson, 2007).

7. This is distinct from virtual reality and virtual reality exposure therapy, which use a variety of sensory cues and specialized equipment, such as head-mounted displays, to create a believable simulation of reality and a personalized setting for therapy (Bohil, Alicea, & Biocca, 2011). Much of the work in virtual reality–based interventions has focused on anxiety (e.g., Riva, 2005) and traumatic experiences (e.g., Rizzo et al., 2010). Because many of these treatments include a therapist (to assist in creating personalized experiences and to help patients process those experiences), these forms of virtual therapy are not included here.

8. The challenges for delivering mental health services have been systematically identified by the Grand Challenges in Global Mental Health Initiative, the National Institutes of Health, and the Global Alliance for Chronic Disease (http://grandchallengesmh.nimh.nih.gov/). Several constituencies were involved (consortium of researchers, advocates, and clinicians from over 60 countries). From that, 1,565 challenges were identified for progress in mental health. This was pared down to 154 challenges, then the top 40, and then 25 by the final expert panel (Collins et al., 2011). The top 5 challenges for reducing the burdens of mental illness included (a) integrate screening and services into routine primary care, (b) reduce cost and improve supply of effective medication, (c) improve children's access to evidence-based care, (d) provide effective and affordable and community-based care, and (e) strengthen the mental health component in the training of all health personnel (Collins et al., 2011).

References


