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Delivery Systems Can Determine Therapy Cost, and Effectiveness, More Than Type of Therapy

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Abstract

We should go further than Kazdin and Blase (2011) in emphasizing the importance of the costs and effectiveness of alternative delivery systems for therapies. I propose that the manner in which therapy is delivered often determines its cost, and its effectiveness, more than the type of therapy delivered. In this article, I illustrate this argument through compiled research and describe several inexpensive delivery systems with the aid of metaphors.

Keywords

therapy, cost, delivery system, cost-effectiveness, benefit, scientist-manager-practitioner

In their article "Rebooting Psychotherapy Research and Practice to Reduce the Burden of Mental Illness," Kazdin and Blase (2011) praised our progress in developing efficacious techniques for treating a variety of severe and costly psychological problems, but they also noted the profound ineffectiveness of current methods for delivering these techniques to produce socially significant reductions in mental illness and in the costs of mental illness to society.

Our focus over the past century has been, perhaps necessarily, on developing psychological techniques that work most of the time for most people for several important psychological problems. The promise of better living through psychological technologies developed through systematic scientific inquiry has yet to be fulfilled, however. We have come only halfway at best. To a limited extent, we have the knowledge to cure and enhance ourselves psychologically in a number of areas, but we have not found ways to use this knowledge to help most of the people most of the time for their most serious psychological dysfunctions. It is as if the techniques or tools for fixing important problems were resting in locked toolboxes, shown to one person at a time with brief instruction on tool use, rented at rather high hourly rates for a few weeks, and then locked back in the toolbox. If universities offered education via similar means, most instruction would be independent studies taught by tenured full professors for an hour or two per week, to 5 to 10 individual students daily, with small amounts of reading that kept key knowledge accessible only to the professors—and without any course evaluation by the few students being taught!

Among the solutions to problems we now face in delivering our treatment technologies to those who need them the most is the development, testing, and refinement of more effective methods of delivering treatment—methods that use less therapist and client time, minimize client transportation costs as well as brick-and-mortar space, and use less of other increasingly scarce and costly resources. Just as therapy is no longer an art but a science based on research evidence gathered in clinical settings, so too can be its delivery. Research of this sort is not particularly popular with most graduate students, funders, or rank and tenure committees. In my experience, it is criticized as secondary in importance, mundane to conduct, or too site- or therapist-specific to be of use to the field. Similar arguments were made decades ago against the desirability of conducting research on the cost effectiveness of different therapeutic technologies (e.g., Strupp, 1981), yet this sort of work has become popular at least in what is called for, if not in what is often performed, in applied psychology (cf. American Psychological Association Presidential Task Force on Evidence Based Practice, 2006).

Research on less costly and more effective ways to deliver therapy is what we need, so that we can use evidence-based delivery systems to provide evidence-based services to the most people for the least necessary expenditure of resources per person (Yates, 1980, 1994). This sort of research is only beginning to be conducted in a thorough, systematic manner that includes careful measurement of costs, and effectiveness,

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from multiple perspectives (cf. Tate, Finkelstein, Khavjou, & Gustafson, 2009).

Delivery Systems for Therapy: Sieves, Golden Ladles, or Plastic Spoons?

The delivery system used to provide a therapy is, arguably, a stronger potential determinant of the effectiveness and cost of that therapy than the effectiveness and costs of specific techniques used in the therapy. Consider the common plastic spoon as a metaphor for the delivery system for the "medicine" of therapy, with the ingredients of the medicine being the specific techniques that are carefully combined by the practitioner to help a client with a particular problem. Suppose the practitioner has studied research regarding which combinations of ingredients work best for this sort of client presenting this particular problem. The ingredients most likely to be effective are chosen. Perhaps the therapist even considers the expense of those ingredients. For example, the therapist might decide whether to prescribe time-consuming hourly recording of catastrophizing and self-negating cognitions, or a simpler and quicker daily check-off log for occurrence of catastrophizing and self-negating cognitions. The therapist proceeds to select the ingredients that fulfill the requirements of best evidence-based practices and that minimize client resources consumed. Having identified and optimized an evidence-based amalgam of techniques, should the practitioner "pour" this carefully developed mixture into . . .

- . . . a sieve, from which the medicine largely dissipates before it reaches the client?
- . . . an exquisite golden ladle, which delivers the exact combination of ingredients to the client with high fidelity but at unnecessary cost? or
- . . . a plastic spoon, with sufficient integrity to deliver the medicine at the minimum necessary expense?

Clearly, the "plastic spoon" delivery system is what most would select as the optimally effective and least costly delivery system for most clients. I believe that we have the right medicine but are using golden ladles to deliver that medicine, which prevents it from getting to most people—particularly to those who need it the most and can least afford it.

Research comparing delivery systems that promise to transmit most or all of the potential effectiveness of a psychological technique while using fewer resources (and costing less) has begun, particularly for problems related to physical health (cf. Ritterband & Tate, 2009). The variety of potential "plastic spoons" researched to date includes Internet-based interventions addressing everything from social anxiety and panic disorder to eating disorders, automated phone interventions teaching self-management of exercise to diabetics (Handley, Shumway, & Schillinger, 2008), and video-based motivational and cognitive-behavioral interventions for HIV risk reduction in females in military service (Essien et al., 2011).

Differences in Therapy Cost Versus Differences in Therapy Effectiveness

How much of a difference can a delivery system make in the effectiveness or cost of a therapy? Meta-analyses of randomized clinical trials of a wide variety of therapeutic techniques have shown repeatedly that many therapy techniques work, and do so reasonably if not similarly well, for some psychological problems (e.g., Shadish, Matt, Navarro, & Phillips, 2000; Smith, Glass, & Miller, 1980). Rigor of design, training of practitioners, and other variables have been examined in these analyses. The consensus is clear: Therapy works, pretty well, most of the time for most people and a variety of problems. With several notable exceptions (cf. Siev, Huppert, & Chambless, 2009), different therapies can be surprisingly similar in their effectiveness, depending on several factors, including characteristics of the therapist and other components of the therapeutic delivery system. Most are better than no therapy, measurement and attention controls, or placebo therapies (cf. Smith et al., 1980). Almost all of these studies use one-on-one therapies, however: golden ladle delivery systems!

Research on the effectiveness of different means of providing the same therapeutic techniques remains, unfortunately, rare. What research there is on delivery systems suggests that considerable savings could be achieved with little or no reduction in therapy outcomes if a "plastic spoon" delivery system was utilized. A substantial research literature finds, for example, little evidence for the incremental effectiveness of using doctoral rather than trained paraprofessional therapists to deliver therapy techniques for a wide range of psychological problems (cf. reviews by Berman & Norton, 1985; Durlak, 1979; Smith et al., 1980, and more recently Shadish et al., 2000).

Other research demonstrates that combinations of different therapeutic agents, as well as variations in other aspects of treatment provision, can have profound effects on the cost, if not the effectiveness, of therapy. For example, overweight clients assigned to two weight-loss treatments lost statistically similar amounts of excess adipose tissue, but at an average cost of $44.60 versus $3.00 per 1% reduction in excess weight (Yates, 1978)! (Note that these cost-effectiveness ratios were in 1976 dollars.) This difference in cost was accounted for largely by the former treatment's use of highly paid staff meeting clients several days weekly for a standard number of weeks in prestigious offices. In the latter treatment, former clients implemented a program detailed in manuals for groups of clients who met in plain and often donated space and who paid per session attended.

Similarly, Siegert and Yates (1980) randomly assigned parents to one of three systems for delivering the same behavioral training for managing disruptive behaviors of their children, or to a measurement and attention control condition. All three training systems produced strong and statistically similar improvements in behaviors targeted by the parents. All three training systems required different mixtures of different types

of resources. The *individual in-office* delivery system required clients to participate in traditional one-on-one sessions for child management training in a therapist's office. The *group in-office* delivery system had clients participate in group training sessions in therapist offices. The *individual in-home* delivery system had therapists train clients in clients' homes. Depending on whether client time and client transportation resources were included in cost calculations, the individual in-office delivery system was substantially more expensive than the individual in-home delivery system and often more than the group in-office delivery system as well.

Similar research using random assignment of 1,827 severely disturbed adults to referral or nonreferral to consumer-operated services (COS) found little difference between multiple sites and techniques in COS effectiveness. Profound differences were observed, however, in the amounts of monetary as well as donated resources consumed by delivery of COS services to individual clients (Yates et al., in press).

Research on Effectiveness and Costs of Delivery Systems Can Save Resources

An example of how different delivery systems can affect treatment effectiveness as well as treatment costs is provided by a slight reinterpretation of a randomized clinical trial reported by Bandura, Blanchard, and Ritter (1969). Snake-phobic participants were assigned randomly to either (a) a measurement control condition, (b) systematic desensitization, (c) modeling of successively more anxiety-provoking interactions with snakes delivered by a film that participants could pause or reverse, or (d) modeling of progressive snake approach by a paraprofessional model. Bandura et al. did not entirely control time spent in each condition, allowing it to vary as long as it did not exceed 5.25 hr. Resources common to all treatments conditions were office space, advertising for research participants, and clients' own transportation expenses.

Bandura et al. (1969) found that the live delivery system for modeling techniques of snake phobia reduction allowed 92% of participants to achieve the "terminal" step of sitting for 2 min with their hands at their sides and a four-foot nonpoisonous snake in their laps. This combination of delivery system and technique was found to consume surprisingly few temporal resources: an average 2.17 practitioner hours and a similar number of client hours in direct service. Snake approach modeling via film allowed 33% of participants to achieve the same terminal step, requiring a mean 2.77 hr from clients plus a few minutes of a paraprofessional's time to show clients how to operate the film projector. The measurement control delivery system was inexpensive but had no effect whatsoever on snake approach. Both live and film delivery systems for the modeling technique were superior in effectiveness, and they consumed substantially less provider and client time than the mean 4.53 hr consumed for clients who were delivered the usual technique of systematic desensitization (which enabled only 25% of clients to reach the terminal step in snake approach).

In sum, Bandura et al. demonstrated that inexpensive combinations of therapy techniques and delivery systems (i.e., modeling delivered via client-controlled film projection) could be significantly more effective than traditional delivery systems (such as the one-on-one in-office provision of technologies such as systematic desensitization). Newer information technologies could enable even greater cost savings. The film showing the snake interaction models, for instance, now could be offered at near-zero cost in transportation and computer resources by streaming Internet video directly to clients' smartphones, and not necessarily in therapist offices, possibly with similar effectiveness.

Bandura et al.'s findings also show that, for a small increment in resources (i.e., an average 0.6 hr of client time, plus perhaps 2 hr of provider time) and an evidence-based choice of treatment technology (i.e., modeling as opposed to systematic desensitization), the effectiveness of therapy for achieving a rather complete "cure" can be increased from an average 33% to 92% of clients. This is the sort of information that, when provided on a larger scale for a variety of therapeutic techniques for the wider range of delivery systems now available, could provide therapists with evidence on how to provide treatment both effectively and inexpensively.

Monetary Benefits of Delivery Systems Need to Be Measured, Too

While adjusting our research to examine the relative effectiveness of different delivery systems for therapies according to traditional psychological measures, we also might include among our measures client reports and other indices of how their productivity and income were affected by therapy and how their use of health and criminal justice services may have declined. These are the types of monetary measures that can be contrasted to the costs of providing therapy through one delivery system or another to determine which combinations of therapeutic techniques and delivery systems are most cost beneficial (i.e., which pay for themselves soonest and most fully; cf. Yates, 2005). Third-party funders will likely support only those combinations of technique and delivery system that return their investments most quickly and enduringly. Once this is shown, that combination may be widely implemented as it would be readily reimbursed.

Additional Suggestions for More Cost-Effective Delivery Systems

Many therapists will note that issues of client confidentiality and the need for privacy may prevent some delivery systems, such as group therapy, from being used for some clients. That does not mean that one-on-one, face-to-face, breathing-the-same-air interaction is required for effective delivery of therapy. Video and audio links are widely available at low cost to anyone with even temporary access to a smartphone, a tablet, or a computer and can be kept confidential and possibly

anonymous. When integrated with Web-based, e-mailed, or downloaded manuals and worksheets, plus videos illustrating how various psychological techniques can be applied, wide-scale administration of a variety of therapeutic techniques seems both possible and affordable for most rather than some people. For example, Mihalopoulos, Vos, Pirkis, Smit, and Carter (2011) found that both bibliotherapy and group therapy were effective delivery systems for preventing depression, with bibliotherapy providing more than twice the impact per dollar invested.

The idea of integrating evidence-based techniques of therapy with means of delivering treatment services that have themselves been shown to be both effective and not inherently expensive is not particularly new (cf. Yates, 1995), and yet is only beginning to take hold. Some psychological practices could emulate the delivery system used by some dentists in private practice, who see the costs and evidence of success in their monthly accounting records and patient rolls. Technologies for preventing and treating dental problems are, perhaps, no less inherently expensive than are psychological technologies. Moreover, many dentists continue to focus on one client at a time as many therapists wish to continue to do. Often these dental techniques are delivered literally face-to-face. Other services dictated by these decisions are performed by paraprofessionals trained and supervised by the dentist. In one-dentist practices, a receptionist makes appointments, greets patients, manages the office, submits bills, and accepts payments. A dental assistant interviews new and returning patients, periodically updates patient medical records, and takes X-rays as needed according to a schedule determined by the dentist. Technologies not requiring staff time may be used as well. A looping video viewable as I wait for X-ray results informs me about the latest cosmetic procedures available, but also could remind me about the best way to floss. My dentist cleans and inspects my teeth, but could avoid the former activity if he did not so relish discussing his latest motorcycle exploits, or the cost of college tuition for his daughter, without having me talking back. He even provides me with a cognitive-behavioral intervention of sorts that I regularly self-administer and suggest to others: "Only floss the teeth you want to keep!"

A high-resolution paper display, aka "chart," on the wall of the examining room informs me about root decay and root canal procedures, providing further motivation for preventive self-management cognitions and behaviors. The receptionist schedules the next appointment. Total time in the office: about 45 min. Total dentist time directly serving me: 5 to 10 min. The result is a substantial savings of his time and my monetary resources, relative to what I would pay if he performed all of the above services (as do many therapists, I have learned). He has two or three patients at various stages of service delivery at any one time. We all feel attended to and appreciated. He gets us in, gets us out, and we receive high-quality treatment, at low cost, due to the use of paraprofessionals, videos, and biblio (wall chart) devices. My health maintenance organization (HMO) delivers other medical services with similar combinations of lay, paraprofessional, and professional staff, all making optimal contributions to service delivery.

Some will take unintended offense at the comparison between dental services, HMOs, and mental health services. I apologize! I do not mean to demean mental health services, or dental or other health services for that matter. Many service systems function similarly, from ophthalmology to general practice to vehicle maintenance, with work distributed among staff and display media according to their abilities. Similar service systems using a mixture of staff with varying levels of expertise have been developed and implemented for some time to deliver particular mental health services (e.g., Tharp & Wetzel, 1969), thus meeting needs for student training as well as treatment for communities of clients. Some have achieved notable commercial success and have been funded by major health service systems (e.g., Cummings, O'Donohue, & Ferguson, 2002). Arguably, externships, if not internships, provide some paraprofessional service delivery as well in mental health contexts, albeit often within the same one-on-one delivery system.

To conduct and apply delivery systems research, doctoral training models for psychologists who would become scientist-manager-practitioners have been proposed (e.g., DeMuth, Yates, & Coates, 1984). We now need to implement these models and these delivery systems and examine their effectiveness, costs, and benefits with the same research methodologies we used to maximize the effectiveness of treatment techniques. The people we serve, and who ultimately fund our treatment and research, expect and deserve no less.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the authorship or the publication of this article.

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