

Training Psychologists for Evidence-Based Practice

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Abstract

Evidence-based practice (EBP) is now commonplace in many health care services and, in recent years, there has been a healthy debate about the role of EBP in psychology. In this article, I provide information on the nature of EBP and how it is consistent with professional training models and standards in psychology. In discussing some of the concerns that have been raised about the value of EBP in psychology, I present research findings on the relevance and potential impact of evidence-based assessment and treatment practices. Finally, after highlighting the promise of EBP, I offer some recommendations for how training efforts in professional psychology should be refocused in order to optimally prepare current and future psychologists to practice in an evidence-based manner.

In the past decade, the promotion of an evidence-based approach to the practice of professional psychology has taken centre stage in most discussions about the nature and future of professional psychology. Developed within medicine, the evidence-based practice model is now being integrated into many health and human service systems, including mental and behavioural health care, social work, education, and criminal justice (Barlow, 2004; Mullen & Streiner, 2004). Leading experts in psychotherapy and mental health research have predicted that, by 2010, the use of evidence-based treatments will be required in health care systems and that practice guidelines will be a standard part of the delivery of psychotherapy services (Norcross, Hedges, & Prochaska, 2002). In this article, I examine the mounting evidence that supports the application of the principles of evidence-based practice (EBP) to the practice of professional psychology. Following a presentation of the nature of EBP and consideration of its fit with current professional standards in psychology, I will briefly examine some of the controversies surrounding the implemen-

tation of EBP in psychology before moving on to present research findings on the relevance and potential impact of evidence-based assessment and treatment practices. Having highlighted the promise of EBP in psychology, in a final section, I will offer some training recommendations aimed at ensuring that practicing professional psychologists, as well as those in graduate training, are competent to deliver the best scientifically informed health care services to the public.

EBP and Professional Standards in Psychology

EBP involves the synthesis of information drawn from systematically collected data, clinical expertise, and patient preferences when considering health care options for patients (Institute of Medicine, 2001; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996), and emphasizes the critical importance of informing patients, based on the best available research evidence, about viable options for assessment, prevention, or intervention services. Therefore, in order to practice in an evidence-based manner, a health care professional must be familiar with the current scientific literature and must use both the research evidence and scientifically informed decision-making skills to determine the ways in which research evidence can inform service planning for a patient. Within psychology, it would be erroneous to equate EBP with any particular set of psychological services or lists of empirically supported assessments or treatments, as the full range of relevant research must be considered and utilized, not just treatment outcome studies and psychometric evaluations of assessment instruments (Hunsley, in press).

Current training models in professional psychology include the scientist-practitioner, practitioner-scholar, and clinical-scientist. All of these emphasize the need for psychologists to be competent in the use and interpretation of scientific methods. Accordingly, as suggested by the American Psychological Association (APA) Presidential Task Force on Evidence-Based Practice (2006), the tenets of the evidence-based movement are entirely consistent with the training models found in professional psychology programs. This, among other factors, recently led the APA to endorse the practice of evidence-based psychology.

Despite the obvious fit between the principles of EBP and training models in professional psychology,

most graduate students in professional psychology currently receive very limited training in evidence-based treatment (EBT) methods. In their survey of accredited training programs in psychiatry, psychology, and social work in the United States, Weissman et al. (2006) found that psychiatry programs offered the most training in EBTs, followed by PhD clinical psychology programs, PsyD clinical psychology programs, and, finally, social work programs. Furthermore, only 4% of psychiatry programs offered no training in EBTs, whereas EBT training was not provided in 44% of PhD clinical psychology programs, 67% of PsyD clinical psychology programs, and 62% of social work programs. Although the extent to which professional psychology training programs in Canada actually offer or require training in EBP methods is unknown, the Canadian Psychological Association (CPA) Standards for Accreditation (2002) are very clear regarding this training in accredited programs. The accreditation criteria for doctoral programs and internship programs in both clinical psychology and counselling psychology include a requirement for training in empirically supported interventions; likewise, accreditation criteria in clinical neuropsychology include instruction in empirically supported intervention and consultation techniques in doctoral programs and training in empirically supported methods of assessment and models of intervention in internship programs.

In a position paper on the implications of EBP for psychiatrists, the Canadian Psychiatric Association adopted the position that the single most compelling reason for practicing in an evidence-based manner was an ethical one (Goldner, Abass, Leverette, & Haslam, 2001). Based on their code of ethics, psychiatrists have an obligation to provide those receiving their services with the best available information about service options. The authors of the position paper argued that this is, essentially, a matter of informed consent, as patients and their families must be provided with high-quality, research-based information in order to make truly informed decisions about psychiatric services. Although no national psychological organization in Canada has explicitly endorsed the practice of EBP or has publicly stated that EBP is an ethical obligation on the part of psychologists, the *Canadian Code of Ethics for Psychologists* (Canadian Psychological Association, 2000) is at least suggestive of the need for psychologists to consider the use of EBP. Specifically, the Code encourages psychologists to strive to provide the best possible service for those seeking psychological services, which may involve selecting interventions that are relevant to the client's needs and characteristics and that have theoretical or empirically supported efficacy.

At the provincial level, there have been some notable developments with respect to the incorporation of the scientific values underlying EBP into publicly endorsed standards of care. In Ontario, for example, the College of Psychologists of Ontario's recent revision to its *Standards of Professional Conduct* (2005) requires that psychologists and psychological associates be familiar with a) the standardization, norms, reliability, and validity of any psychological tests and assessment techniques used with clients, and with the appropriate use and application of these assessment strategies and b) the evidence for the relevance and utility of the interventions used and with the appropriate use and application of these interventions. It should be noted, however, that requiring familiarity with the evidence base underlying an assessment or intervention service is not the same as requiring the use of only these services supported by the preponderance of relevant research evidence. After all, a registered professional might still choose to use human figure drawings or the Thematic Apperception Test as assessment tools despite knowing that the research offers little in the way of evidence supporting their validity or utility (cf. Hunsley & Mash, 2007). On the other hand, in its submission to the Commission on the Future of Health Care in Canada (i.e., "the Romanow Commission"), the Ontario Psychological Association (2001) took a much stronger stand on the essential need for EBP in psychological services by stating that "Treatments should be publicly-funded only when the efficacy of those treatments has been demonstrated by the best objective, scientific evidence available. Outcomes should be continually measured and evaluated in order to make necessary improvements to treatments and in order to maintain eligibility for public funding" (p. 17).

The Controversy over EBP in Professional Psychology

The promotion of EBP in psychology has not been without its critics, and numerous articles and special sections devoted to the topic have appeared in both journals and professional association newsletters in Canada and the United States. A range of concerns have been expressed around the implementation of EBP, including concerns about the a) potential for the loss of professional autonomy, b) takeover of professional psychology by special interest groups or by those espousing certain theoretical orientations, c) dehumanization of psychological services, d) inadequacy of the research base underlying EBP in psychology, and e) impossibility of ever basing psychological services on research evidence (e.g., Bohart, 2000; Bohart, O'Hara, & Leitner, 1998; Wampold & Bhati, 2004; see Norcross, Beutler, & Levant, 2006, for a

fuller presentation of these, and other, concerns). Similar concerns about the impact of EBP on both patient care and professional identities have been raised in other health professions. However, as Goldner et al. (2001) discussed, EBP can (and should) be conducted in a warm and empathic manner, and the emphasis on research evidence in EBP does not obviate the need for the professional to possess highly developed clinical skills and clinical judgment. Initial concerns around reductions in professional autonomy and effects on the clinically sensitive delivery of services have diminished as these concerns have been shown to be largely groundless. Subsequently, much more probing questions have been raised, including questions regarding the nature and scope of research evidence that is relevant to EBP and the optimal strategies for psychologists to utilize this research evidence in their practices (e.g., Messer, 2004; Westen & Bradley, 2005).

It is important to understand the reasons why so many psychologists felt, at least initially, so uncomfortable with, or threatened by, the introduction of EBP in psychology. Although surveys appear to be finding a growing acceptance of EBP principles among mental health care professionals (Huffman, Martin, Botcheva, Williams, & Dyer-Friedman, 2004; Walrath, Sheehan, Holden, Hernandez, & Blau, 2006), many professionals, including some psychologists, remain wary about adopting these principles. For EBP to be universally implemented in professional psychology, we need to understand and address the perceived obstacles and limitations associated with EBP (see Addis, 2002).

It is my impression that a host of interrelated issues underlie many psychologists' concerns about EBP. As is frequently the case when any new trend or "paradigm shift" occurs, either in society-at-large or in a heterogeneous collection of individuals, a mix of personal, professional, and political group dynamics comes into play. Extensive psychological research indicates that both psychological reactance and in-group/out-group dynamics exert considerable influence on people's attitudes and behaviours. Accordingly, efforts to disseminate and implement EBP must attend much more fully to some psychologists' concerns of being devalued and pressured to adopt practices that they see as incompatible with their training and current services.

Beyond the influence of basic social psychological processes, it is important to recognize that there are legitimate differences of opinions among psychologists about, for example, their professional obligations to respect patients' service preferences and the relative importance of clinical experience versus research evidence in providing psychological services. EBP does

not override patient preferences, but it does require that clinicians take responsibility for ensuring that patients are provided with scientifically accurate information about service options before making decisions about their options for psychological services. Of course, no psychologist is obliged to provide a service, regardless of its nature, simply because a patient requests it: As psychologists, we are obliged to strive to provide what we believe to be the best, most appropriate service (cf. Davison, 2006). As for the relative valuing of clinical experience, it is necessary to take a nuanced perspective that is informed by research evidence. It has long been known that, for both psychologists and physicians, clinical experience, per se, is unrelated to patient outcomes (e.g., Flood, Scott, Ewy, & Forrest, 1982; Shapiro & Shapiro, 1982). However, patient outcome *is* enhanced when practitioners provide health care services to many patients presenting with the same condition (Shortell & LoGerfo, 1981) or when services are provided in short succession to patients with the same clinical and sociodemographic characteristics (Leon, Martinovich, Lutz, & Lyons, 2005). Thus, particular aspects of clinical experience can, under specific practice conditions, meaningfully enhance the provision of services.

Of course, EBP hinges on the use of research evidence. As some commentators have pointed out, an emphasis on the use of evidence from randomized controlled trials (RCTs) in EBP may result in the dismissal of evidence resulting from other research designs (e.g., Waddell & Godderis, 2005; Wampold & Bhati, 2004; Westen & Bradley, 2005). Because all models of evidence-based health care services espouse the use of hierarchies of research evidence, rather than a reliance on a single methodology or research design, this concern seems overstated. Stemming primarily from considerations of internal validity, evidence hierarchies typically place expert opinion on the lowest level of the hierarchy, followed by case studies, group research designs that have shortcomings in addressing threats to internal validity, group research designs that have a high degree of internal validity (such as true experiments and, specifically, RCTs), and, then, systematic reviews (including meta-analyses) of well-designed studies at the highest level. If evidence is not available at the highest level or is inapplicable to the patient in question, clinicians are encouraged to turn to and use evidence at a lower level in the hierarchy (Hamilton, 2005). Despite this, some have gone as far as to dismiss evidence from RCTs as irrelevant to the routine provision of mental health services, claiming that such evidence is insensitive to the complexities of clinical practice and the dynamics of maturational and interpersonal influ-

ences on patient functioning (Waddell & Godderis, 2005). I will address the specific question of the relevance of RCT evidence to typical psychological practice in a later section. I will now examine the evidence for the generic assumption that seems to underlie the rejection of evidence from research designs with strong internal validity: namely, that routine clinical practice *does* adequately respond to the psychosocial needs of patients.

Evaluating Evidence on the Provision of Psychological Services

So, what do we know about the impact of psychological services, provided in real-world settings, on patient functioning and well-being? Surprisingly little, as it turns out, and, unfortunately, much of what we do know is not particularly encouraging.

Let us first consider the use and impact of psychological assessments. All professional psychologists receive extensive training in the use of assessment instruments and processes. There have been clear improvements over the years in both the quality and quantity of assessment tools available for clinical use, and the assessment literature is replete with many hundreds of studies on the psychometric properties of these instruments. On the other hand, beyond evidence for the clinical utility of behaviourally based functional analytic assessment strategies (Haynes, Leisen, & Blaine, 1997), there are very few studies that examine whether the data resulting from psychological assessment activities enhance the provision and outcome of clinical services (Hunsley & Mash, 2007). A recent study by Lima et al. (2005) is one of the few studies explicitly designed to assess the utility of an assessment instrument. Clients in a community clinic (who presented with a range of disorders, including mood disorders, anxiety disorders, substance-related disorders, adjustment disorders, eating disorders, and personality disorders) completed the Minnesota Multiphasic Personality Inventory-2 (MMPI-2) prior to treatment. Half the treating clinicians received feedback on their clients' MMPI-2 data, half did not. Providing clinicians with this feedback as a potential aid in treatment planning had no impact on clinical variables such as improvement ratings or premature termination rates. In light of the current lack of evidence for the utility of psychological assessment, it is perhaps understandable that many surveys in the past decade have found that few psychologists regularly use standardized assessment tools in their practices and that the average clinical psychologist spends less than four hours/week on assessment activities (Camara, Nathan, & Puente, 2000).

Surveys have found that only a minority of psychologists use some type of measurement to assess the out-

come of their services (Hatfield & Ogles, 2004; Phelps, Eisman, & Kohout, 1998). Hatfield and Ogles also reported on some interesting differences between users and nonusers of outcome assessment measures: Users were more likely to have received training in the use of outcome measures, to be working in an institutional setting (versus individual or group practice), and to have a cognitive-behavioural orientation (as compared to being insight-oriented or eclectic in their practices). In contrast to the very limited evidence on the utility of assessment data in general, there is compelling evidence that tracking patient progress throughout treatment does have substantial clinical impact. In a meta-analysis of three studies, with data from over 2,500 clients in "real world" service settings, Lambert et al. (2003) examined the impact of providing clinicians with ongoing feedback from a standardized outcome measure completed after each treatment session. All clients completed the measures: Half of the clinicians were randomly assigned to the condition in which they received feedback from the measures, the other half were in the condition in which no feedback was provided and clinicians continued to provide services in their usual manner. In the no feedback condition (i.e., usual clinical services), by the end of treatment, 21% of clients reported some deterioration in functioning and 21% reported clinically significant improvements in functioning. In contrast, in the feedback condition, 13% of clients experienced deterioration in functioning and 35% experienced clinically significant changes. Simply put, receiving feedback on client progress (or lack of progress) prompted clinicians to take steps that resulted in a 33% reduction in unsuccessful treatment and a 66% increase in successful treatment. Because of the strength of these findings, Lambert et al. argued that, as clinicians are ethically obliged to provide the best possible services, they should routinely monitor treatment progress.

The Lambert et al. (2003) data on treatment success raise the question of just how effective psychotherapy is in routine clinical settings. Their data indicate that less than a quarter of patients usually make substantial gains in treatment. Such results seem rather discouraging, but just how representative are these findings? Several recent large-scale studies provide relevant data on this crucial question.

Hansen, Lambert, and Forman (2002) reported on their analysis of data from over 6,000 American adults seen in a range of practice settings, including employee assistance programs, community mental health clinics, health maintenance organizations, and university counselling centres. One-third of the patients attended only one treatment session, with the median

being three sessions. Based on outcome data, 8% deteriorated during therapy, 57% experienced no change, 21% improved, and 14% recovered fully. In other words, 35% benefited from treatment. In their analysis of data from over 6,100 American adults (all of whom were diagnosed with an Axis I disorder) seen by clinicians in a managed care company, Wampold and Brown (2005) reported that, among patients who completed a measure of functioning at least twice, the median number of sessions attended was 8 ($M = 10.6$). Based on the outcome data on this sample, 29% of patients were seen as improved or recovered at the end of therapy. In a much smaller sample of patients ($n = 61$) seen in a psychology training clinic, Callahan and Hynan (2005) reported findings similar to these two larger studies: 15% of patients improved and 18% recovered by the end of treatment. Much more optimistic results were reported by Evans, Connell, Barkham, Marshall, and Mellor-Clark (2003) in their analysis of data from over 6,600 adults receiving psychotherapy in a National Health Service primary care setting in England. They reported that over three-quarters of patients improved by the end of treatment, a result that is at least twice the size of estimates from American data sets. Although the difference in results may reflect differences in national health care systems, it is more likely due to the fact that the Evans et al. (2003) outcome estimate is based on a subsample of patients ($n = 2,509$; 38% of all patients) for whom data were available for both the first and final treatment sessions. By excluding from analysis all other patients, including those who dropped out of treatment, it is highly likely that their treatment outcome estimate is substantially inflated.

Aside from the Evans et al. (2003) study, the evidence to date seems to indicate that approximately one-third of adult patients improve as a result of receiving psychotherapy.¹ This estimate for the impact of real-world psychological interventions is far less than that typically found in the RCT literature on treatment outcome. Across 28 studies of EBTs, involving over 2,100 adult patients, Hansen et al. (2002) found that the average patient received 13 treatment

sessions. Most importantly, they reported that 57% of patients met criteria for recovery by the end of treatment, and fully two-thirds met criteria for improvement or recovery. But can such results be obtained in routine practice? It is to this question that I now turn.

Are EBTs Transportable to Routine Psychological Practice?

A host of issues has been raised about the applicability and relevance of EBTs to real-world practice, including whether patients in RCTs are representative of those seen in general practice and whether EBTs actually work, or work better than treatment as usual (TAU), in the real world. Although we are far from having complete evidence on these issues, a growing literature relevant to the question of EBT transportability has recently developed.

With respect to the representativeness of patients included in RCTs, there is evidence that, if anything, these patients are more severely distressed than those encountered in routine practice (Carroll, Nich, McLellan, McKay, & Rounsaville, 1999; Stirman, DeRubeis, Crits-Christoph, & Brody, 2003). If severity is not an issue, it has also been suggested that comorbidity is. Westen, Novotny, and Thompson-Brenner (2004) suggested that most treatment studies may have nonrepresentative samples because researchers have tended to exclude potential participants with comorbid disorders. The extent to which comorbidity, per se, influences treatment outcome is a matter of active investigation, but there is considerable evidence to suggest that it often has little or no effect (e.g., Doss & Weisz, 2006; Joormann, Kosfelder, & Schulte, 2005; Kazdin & Whitley, 2006). Furthermore, a recent review of the literature on the treatment of child and adolescent anxiety, attention deficit/hyperactivity disorder, conduct problems, and depression found that almost half of published treatment studies used no exclusion criteria related to comorbidity (Weisz, Hawley, & Doss, 2004). Likewise, a recent review of treatment effectiveness studies (i.e., investigations in which EBTs are provided in real-world settings) by Hunsley and Lee (in press) found little evidence that the presence of comorbid conditions led to patient exclusion from treatment studies unless the comorbid condition took precedence in terms of clinical service provision. As an example, in a study on the treatment of panic disorder, a potential research participant with comorbid substance abuse would usually not be entered into the study but, instead, would be referred for treatment of the comorbid condition. Finally, looking at the representativeness issue from a different perspective, there do appear to be EBTs for most disorders encountered in clinical practice. Schiffman, Becker, and Daleiden (2006) used clinical service data

1 The data reported thus far all deal with treatment services for adult patients. The evidence for the impact of real-world services for children and adolescents is less developed, but results thus far are rather discouraging. Ollendick and King (2004) reported that standard clinical services for child and adolescent disorders are generally not effective and, in an RCT with youth experiencing clinically significant behaviour problems, Weiss and colleagues found that treatment provided by clinicians in the community resulted in outcomes that were comparable to what was achieved when youth received academic tutoring (Weiss, Catron, & Harris, 2000; Weiss, Catron, Harris, & Phung, 1999).

from almost 2,200 youth who received psychological services from the Child and Adolescent Mental Health Division of the Hawaii Department of Health. The found that 89% of youth had a primary diagnosis for which an EBT was available and, among those identified with multiple diagnoses, EBTs for all diagnoses were available for 70% of patients.

The next question is whether EBTs work in real-world settings, when delivered to real-world patients by real-world psychologists and other clinicians. The simple answer is “yes they do.” In a review of patient files from a National Health Service unit in England, Westbrook and Kirk (2005) reported that almost half of 1,276 adult patients who received cognitive-behavioural EBTs improved by the end of treatment, and approximately one-third recovered to a normal level of functioning. There are now several dozen effectiveness studies in which EBTs, for youth and for adults, were implemented in regular clinical settings. In a review of these effectiveness studies, Hunsley and Lee (in press) found that over 75% of patients followed the full course of treatment, thus yielding treatment completion rates comparable to those reported in RCT treatment outcome studies and substantially greater than the completion rates typically found in clinical settings (e.g., Wierzbicki & Pekarik, 1993). Hunsley and Lee also found that, in the vast majority of studies, treatment outcome was comparable or superior to the typical results obtained in RCT treatment outcome studies. For example, 51% of adult patients treated for depression improved, 64% of adult patients treated for obsessive-compulsive disorder improved, and 63% of youth treated for anxiety disorders improved. In other words, the EBTs worked just as well in the real-world context as they did under more tightly controlled research conditions.

If EBTs are effective in real-world settings, how does their effectiveness compare to that obtained with commonly provided treatment services? The data reviewed in the previous section would suggest that EBTs should have greater success rates than TAU. A fascinating study by Cukrowicz et al. (2005) analyzed the effect of policy changes in a psychology training clinic that a) required EBTs to be provided to patients and b) allowed services to be provided to patients with extreme conditions (e.g., suicide attempts, personality disorders). Based on ratings of clinical file materials, not only did patients receiving services after the policy change experience greater improvements, they also completed treatment in half the number of sessions!

The best evidence on the EBT versus TAU question comes from experimental studies in which patients are randomly assigned to either an EBT or to TAU. In a recent meta-analytic review of 32 such RCTs, Weisz,

Jensen-Doss, and Hawley (2006) found that EBTs for the treatment of child and adolescent disorders typically outperformed TAU. It must be noted, however, that the majority of studies included in the meta-analysis focused on youth externalizing disorders. Therefore, the extent to which the results generalize to the treatment of youth internalizing disorder, or to adult disorders, is unknown. There are, however, a growing number of EBT versus TAU comparisons for the treatment of adult disorders. For example, compared to TAU, EBTs for panic disorder (Addis et al., 2004) and borderline personality disorder (Linehan et al., 2006) yielded results that were clearly superior. In sum, although we are far from answering the questions about a) the effectiveness of EBTs in routine practice and b) the relative effectiveness of EBTs and TAU, the evidence clearly points to the value of providing EBTs to our patients.

Recommendations for Training in Evidence-Based Psychological Practice

In the foregoing pages, I presented evidence that EBP in psychology has the potential to improve psychological services. In this final section, I consider the skill sets necessary for current and future professional psychologists to be able to offer the best available scientifically based and supported health care services. I begin by considering a general set of attitudes and skills necessary for EBP before moving on to comment on specific training issues in the realms of psychological assessment and intervention. Although our current professional training programs provide a number of opportunities for developing skills in EBP, I believe that more needs to be done to equip future psychologists with the requisite set of attitudes and skills.

Training in generic skills. EBP requires that psychologists be aware of, and use, the best available scientific evidence. Knowledge of the research literatures on assessment and treatment is necessary, but not sufficient. Services must be tailored to a patient’s unique characteristics and circumstances. This necessitates that the psychologist also have a general appreciation of research in areas such as, for example, psychopathology, normal development, and epidemiology. The task of maintaining one’s knowledge in all of these areas is rather daunting, especially as the knowledge base in each of these areas is rapidly expanding. Accordingly, to access research evidence, it is now essential that psychologists have well-developed skills in the use of Internet search engines and strategies for searching databases of electronic journals. By using these skills, psychologists can access resources such as systematic reviews of clinical conditions and services

produced by the Cochrane Collaboration (<http://www.cochrane.org/>) and the Campbell Collaboration (<http://www.campbellcollaboration.org/>). Similarly, the ability to access clinical guidelines, such as those developed by the National Institute for Health and Clinical Excellence (NICE; <http://www.nice.org.uk/>) and the American Psychiatric Association (http://www.psych.org/psych_pract/treatg/pg/prac_guide.cfm), provides opportunities for psychologists to benefit from expert consensus statements based on scientific evidence.

Most training programs offer courses in research design and the statistical analysis of data. These courses provide skills that are important to the conduct of research, but they may not adequately prepare professional psychologists to be good consumers of research. Students often emerge from these courses with a well-honed ability to detect flaws or limitations in a study, but they may be less able to appreciate the cumulative nature of what we know (as opposed to what we do not know) and how to base psychological services on that best available research evidence. Likewise, they may not have developed the efficient strategies needed in EBP to search for, identify, and use the best available evidence. There are widely available resources to help in this process (e.g., Hampton, 2005; Hunt et al., 2000) but, unless modelled by supervisors during practica and internship training, most students are unlikely to receive any guidance or training in developing these essential skills. The abilities to search, obtain, and critically analyze research evidence are at the heart of the process of life-long learning expected of professional psychologists, but few training programs explicitly focus on these key ingredients for the successful implementation of EBP.

Based on many decades of psychological research, it is abundantly clear that people's ability to accurately evaluate their own skills and characteristics is relatively poor, and health care professionals are not immune to this tendency to make inaccurate self-assessments (Davis et al., 2004). We also know that clinical decision-making can be plagued by a host of heuristics and biases, including primacy and recency effects, attributional biases, and availability heuristics, all of which can lead to suboptimal and/or erroneous decisions (Garb, 1998). EBP demands that health care services be planned and delivered on the basis of the best available research evidence, not on the basis of highly memorable, but ultimately, unrepresentative patients whom a psychologist may have once encountered or heard about in group supervision. Therefore, to minimize the impact of flawed cognitive processes on patient care, it is essential that training programs provide both exposure to research on these issues and

training in strategies that can be used to systematically counter common biases and heuristics (e.g., diminishing a reliance on memory, using structured procedures for obtaining information and making clinical decisions).

Training in assessment skills. It goes almost without saying that professional psychologists must have a solid background in psychometrics, including understanding the concepts and importance of standardization, norms, reliability, validity, and clinical utility. Surveys indicate that most training programs provide at least cursory coverage of these areas (e.g., Childs & Eyde, 2002). Unfortunately, such survey data also indicate that the nature of assessment training in most programs has changed little in the past three or four decades, with the primary focus being on the skills necessary to administer, score, and interpret a small core of intelligence and personality assessment measures. Some of these measures may have value when providing services that are solely intended to be assessment-focused (e.g., psychoeducational assessment, vocational assessment) but, as described earlier in this article, there is little evidence to date that such measures have any treatment utility. As practice surveys consistently find that treatment is the psychological service most commonly provided by psychologists, there is clearly a disconnect between what students are learning about assessment and what they need to know about assessment in order to provide evidence-based intervention services.

So what *do* psychologists need to know about assessment in order to engage in EBP? The research reviewed earlier in the article suggests that they need to know about a) functional assessment strategies that focus on delineating the factors that influence and maintain symptoms and problematic or distressing thoughts and behaviours and b) additional measures and strategies, including both standardized and individually tailored rating scales, for tracking treatment progress and evaluating treatment outcome. Fortunately, these are precisely the assessment skills that are part and parcel of almost all current EBTs. Indeed, if one examines a treatment manual for almost any EBT, regardless of orientation, it is clear that the close and consistent monitoring of treatment effects is a cornerstone of efficacious treatments. One might even speculate that the use of these focused assessment strategies is a major reason for the clinical success of EBTs. Unfortunately, training program surveys indicate that, although there is some coverage of treatment monitoring and behavioural assessment issues in many programs, the depth of coverage is typically very limited. Accordingly, training in assessment

needs to attend more to clinically relevant measures, methods, and strategies and to more explicitly link assessment activities to the provision of EBTs. Ideally, all professional psychologists should be trained to engage in ongoing evaluation of their services in order to ensure that optimal services are provided to each patient. By examining their results across patients, psychologists would be able to document the impact of their services and determine specific services or areas of practice that do not match relevant research-informed treatment benchmarks (Hodges, 2004; Ogles, Lambert, & Fields, 2002); this, in turn, would aid in identifying specific activities for which the psychologist might wish to consider receiving consultation or further training.

Training in intervention skills. The obvious primary recommendation stemming from the literature reviewed in this article is that psychologists and psychologists-in-training should learn and use EBTs. The advantages to patients when EBTs are used are becoming more and more evident. As for psychologists, using EBTs and evidence-informed procedures (as described in the following paragraph) means that they are providing the best possible service. Following a treatment manual for an EBT does not entail any reduction in professional autonomy and is not akin to wearing a straitjacket – as emphasized by the principles underlying EBP, all evidence-based services must be tailored to the treatment context by considering clinical expertise and patient preferences. Learning a new treatment format can be demanding, both in terms of time and effort. For licensed/registered psychologists, this process is really no different than what is already required of them by psychology regulatory bodies when they wish to enter into a new practice area or develop an extended set of professional services. Without a doubt, for trainees and psychologists alike, learning to provide EBTs requires a great deal of work but, if one is to provide the best possible professional services, what is the alternative? According to the policies adopted by the Canadian Psychiatric Association and the American Psychological Association, there really is none.

There is, however, much more to providing evidence-based intervention services than just being able to provide EBTs that are supported by RCTs and effectiveness studies. The entire range of treatment research should be brought to bear when considering the evidence base for developing and implementing treatment plans. Recent task forces in psychology have summarized a great deal of this evidence relevant to devising evidence-informed treatment procedures. For example, decades of research on the therapeutic

relationship have demonstrated that therapeutic empathy, a good therapeutic alliance, and clinician-patient collaboration on setting and attaining treatment goals all exert considerable influence on the outcome of treatment (Norcross, 2002). When providing their services, psychologists should never overlook these potent treatment elements. There are other treatment principles that cut across treatment orientation and that appear to contribute to treatment success. These include the provision of treatments that are structured but flexible, the appropriate use of both directive and nondirective techniques, and an awareness of how to respond to potential problems in the therapeutic alliance (Castonguay & Beutler, 2006). Steps are also being taken to disseminate information on the use of discrete treatment modules that appear in multiple EBTs and that address specific treatment targets (e.g., coping with anxiety, enhancing assertiveness, improving problem-solving skills: Chorpita, 2007; Chorpita, Daleiden, & Weisz, 2005). By selecting and combining these evidence-based modules, psychologists should be able to generate treatment plans that are attuned to a patient's needs when no specific EBT is available that addresses the patient's focal clinical conditions.

Conclusions

Evidence-based practice in psychology holds the promise of basing psychological services on a firm scientific foundation without sacrificing our professional responsibility or ignoring patient priorities. Although far from complete, the mounting evidence indicates that, not only is EBP in psychology feasible, it also is likely to improve upon many of the behavioural health care services currently available to the public. To make the promise of EBP a reality in professional psychology, there are numerous changes that need to be made to both the training of new psychologists and the offering of continuing education opportunities for licensed/registered psychological service providers. Such changes include a) promoting efficient strategies for seeking, evaluating, and appropriately using research evidence, b) redirecting assessment training efforts to better target the knowledge and skills that have direct relevance to providing and evaluating evidence-based services, and c) emphasizing the critical importance of learning and using EBTs in conjunction with other evidence-informed intervention strategies. At heart, EBP in psychology is simply about fulfilling the promise of all the training models in professional psychology, thus ensuring that our patients receive the best services that scientific psychology has to offer.

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Résumé

La pratique fondée sur les données probantes est maintenant monnaie courante dans un grand nombre de services de soins de santé et, au cours des dernières années, un débat fructueux entourant ce genre de pratique s'est installé. Dans le présent article, je présente de l'information sur la nature de la pratique fondée sur les données probantes et la façon qu'elle s'inscrit dans les modèles et les normes de formation professionnelle de la psychologie. Je présente ensuite des conclusions de recherche sur la pertinence et l'incidence possible des pratiques d'évaluation et de traitement fondées sur les données probantes, tout en commentant certaines des préoccupations soulevées quant à leur valeur. En dernier lieu, après avoir mis en relief la promesse de ce genre de pratique, je formule des recommandations sur la façon de recentrer les efforts de formation en psychologie professionnelle afin de préparer de façon optimale les psychologues d'aujourd'hui et ceux de demain à exercer dans le cadre de cette pratique.

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