

Attitudes to evidence-based interventions and routine outcome measures in mental health professionals

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Summary

There is a major discrepancy between the amount of resources spent to develop and apply evidence-based psychological treatment programmes and interventions in mental health care and the extent to which these interventions are used in real-life mental health care service settings. This is a major impetus for the field of implementation science, which strives for a deeper understanding of the factors and strategies that determine the success or failure of the implementation of “evidence to practice” in health care organisations.

This thesis explores factors that might influence the implementation of evidence-based interventions in routine mental health care, including the specific intervention of routine outcome monitoring and feedback. The thesis has a special focus on mental health professionals’ attitudes toward adopting evidence-based interventions, measurement issues as well as the relationship between professionals’ attitudes and organizational factors. The thesis builds upon data collected through two different online survey studies in which members of the Norwegian Psychological Association and the Norwegian Nurses Organization, the professional group for nurses working in mental health and substance abuse, were invited to participate. The three papers described in this thesis provide us with implementation instruments that can be used both for research and applied purposes. Furthermore, major results and implications of our studies include the need to take into consideration that professionals exhibit different levels of experience, perspectives, needs and values that are important to them, which again may have implications for the choice and design of training efforts and organizational support that will most efficiently lead to successful adoption and sustainability of an implementation initiative.

List of papers

1. Rye, M., Torres, E. M., Friborg, O., Skre, I., & Aarons, G. A. (2017). The Evidence-based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44). doi: [10.1186/s13012-017-0573-0](https://doi.org/10.1186/s13012-017-0573-0).
2. Rye, M., Friborg, O., & Skre, I. (2019). Attitudes of mental health providers towards adoption of evidence-based interventions: relationship to workplace, staff roles and social and psychological factors at work. *BMC Health Service Research*, 19:110. doi: [10.1186/s12913-019-3933-4](https://doi.org/10.1186/s12913-019-3933-4).
3. Rye, M., Rognmo, K., Aarons, G. A., & Skre, I. Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM. Manuscript submitted to *Administration and Policy in Mental Health and Mental Health Services Research*, October 2018, under revision.

List of abbreviations

APA	American Psychology Association
CFI	Comparative fit indices
CFA	Confirmatory factor analysis
EBI	Evidence-based interventions
EBP	Evidence-based practice
EBPAS	Evidence-based practice attitude scale
EM	Expectation-maximization method
FIML	Full information maximum likelihood procedure
MLR	Robust standard errors
NPF	Norwegian Psychological Association
PCA	Principal component analysis
RMSEA	Root mean square error of approximation
SPOR	Norwegian Nurses Organization, the professional group for nurses working in mental health and substance abuse
SRMR	Standardized root mean error

1. Introduction

Since the first steps of modern clinical psychology as a separate science, the field has exploded with regard to both the amount of psychotherapy research available and the numerous treatment approaches, interventions and initiatives developed (Lambert, 2013). Tremendous amounts of resources are allocated to the development and application of evidence-based treatment programmes and interventions. However, health interventions that show strong empirical support are infrequently implemented in real-life clinical service settings (Drake et al., 2001; McHugh & Barlow, 2010; Satcher, 2000), and their dissemination and implementation may take decades to complete and often fail to cause the expected change in practice (Balas & Boren, 2000; Brownson, Kreuter, Arrington, & True, 2006; Haines, Kuruvilla, & Borchert, 2004). The complicated relationship between clinical science and clinical practice has widely been referred to as the “science-practice” gap (e.g., Lambert, 2013). While the policy statement on evidence-based psychological practice can be seen as an attempt to bridge this gap (Kazdin, 2008; APA Presidential Task Force on Evidence-Based Practice, 2006; Norsk Psykologforening, 2007), the same movement has caused substantial, and at times quite aggressive, debates (Wampold & Imel, 2015). A promising direction in the psychotherapy field involves the development of practice-based evidence, especially in the use of feedback to inform client progress throughout treatment (Barkham, Hardy, & Mellor-Clark, 2010). This movement, described by some as revolutionary (Miller, Hubble, Chow, & Seidel, 2015), highlights the collaboration and mutual engagement between science and practice (Castonguay, 2013) and, thus, having the potential to bridge the science-practice gap (Newnham & Page, 2010). However, the movement has also been met with concerns, including the lack of, or barriers to, implementation (Boswell, Kraus, Miller, & Lambert, 2015; Goldman & Seybolt, 2015). As Rønnestad (2008) notes, to best serve the *continued* debates regarding evidence-based practice (and here, we add practice-based evidence),

clinicians, researchers and others need to understand the concept and background of evidence-based practice.

As implementation science developed from the acknowledgement of barriers in translating evidence to practice (Dearing, Kee, & Peng, 2018), I argue that the historical perspectives of psychotherapy and psychotherapy research constitute a foundation for both the understanding of the implementation science field and the interpretations and implications of the work in this thesis. Thus, this thesis will first examine the broad lines in the history of psychotherapy and psychotherapy research. The thesis focuses on the influential concepts of “evidence-based practice” and “practice-based evidence”, in combination with a view of the historical developments and changes in psychotherapy and psychotherapy research following various individuals and events. After examining the history of this field up to the present, the thesis will move to the field of implementation science, within which this Ph.D. project as a whole is embedded. This attempt to cover the history, the current situation and the future directions of these extensive fields requires a statement of the limitations of the coverage. Given the focus on modern clinical psychology, much of the history of the understanding and treatment of mental illnesses will not be covered, and an overview of the various psychotherapeutic orientations and evidence-based interventions will not be provided. It will also not be possible to present a *full* comprehensive picture of all important aspects of the broad discussions addressed.

1.1 History of clinical psychology and psychotherapy research

The origins of psychotherapy are often associated with Freud and psychoanalysis, which, from the end of the 19th century to approximately 1960, was the dominant orientation in the field of clinical psychology. However, the origins of psychotherapy can also be traced farther back in time. For instance, an important shift in the treatment of mental illness followed the

Enlightenment era and a growing compassion for human problems that had previously been viewed as getting what one deserved, punishment for sinful behaviour or demonic possession (Cautin, 2011). The French physician Philippe Pinel (1745-1826) was one of the advocates for the humane treatment of people with mental illnesses. As a director of the Bicêtre and La Salpêtrière Asylums, he gradually stopped inhumane activities such as chaining and bloodletting. After Pinel, the La Salpêtrière Asylum became a research centre under the directorship of neurologist Jean-Martin Charcot (1825-1893), who studied hysteria and hypnosis as a treatment for mental disorders and was one of Freud's inspirators.

The first psychotherapists were not embraced by the scientific community and the then-dominant paradigms of the medical field and somatic models of illnesses (Cautin, 2011). The psychoanalytic theories of Sigmund Freud (1856-1939) and Alfred Adler (1870-1937) also met resistance from influential philosophers of science, such as Karl Popper (1902-1994), who argued that Freud's theories lost their empirical character as they were not falsifiable, though being a method of pseudo-science (Dienes, 2008; Walsh, Teo, & Baydala, 2014). To view this from a historical perspective, in the 19th century, the natural sciences were emphasized (Walsh et al., 2014). The principles of the natural sciences were applied to humans to seek causes of behaviour through observations, mathematical information, sensory experiences and experimentation as a source of knowledge. Additionally, tension existed between those who wanted psychology to be a pure natural science and those who wanted psychological principles to be applied to practical matters. However, in the following years and after World War II, the practice of psychotherapy grew, as did its research status and recognition. Other approaches to psychotherapy appeared, including Carl Rogers' client-centred therapy and learning-based approaches with a greater emphasis than previous orientations on the importance of formally evaluating the effects of psychotherapy (as described, for instance, by Lambert, 2013). The challenge of managing returning war veterans

with psychological problems that are now known as posttraumatic stress disorder (PTSD) meant that clinical psychologists began to compete with psychiatrists. Consequently, a need for standards for the psychological training and practice of professional clinical psychologists who practised psychotherapy emerged. This need was met by the educational Boulder model in 1949 (subsequently referred to as the scientist-practitioner model), which stated that education in clinical psychology should have its foundation in research and scientific practice (Baker & Benjamin, 2000). The Boulder model has also met criticism due, for instance, to being excessively rooted in a medical orientation (Albee, 2000; Frank, 1984).

Since World War II, developments in psychotherapy practice and research have been influenced by both social forces and policies (for instance, pressure to reduce treatment length and make affordable treatments available to a large segment of the population), theoretical battles about the causes and treatments of psychopathology, different psychological orientations and the emergence of new statistical techniques and methodological approaches, such as meta-analysis (DeLeon, Kenkel, Garcia-Shelton, & Vandenbos, 2011; Lambert, 2013; Rønnestad, 2008). The next section considers a fundamental influence: the policy statement on evidence-based practice.

1.2 Policy statement on evidence-based psychological practice

The need to demonstrate the efficacy of psychotherapy in general and various treatments specifically shaped the further development of psychotherapy. Developments in research designs came to play an important role, allowing studies to examine different variations in a “general effect question”, attempting to answer the question of whether psychotherapy is effective. In the 1950s-1960s, psychologist Hans Eysenck (1916-1997) published a series of influential books and articles and claimed that the rate of recovery of patients receiving psychotherapy was equal to the rate of spontaneous remission, a statement that led to much

debate (see for instance Wampold & Imel, 2015, for a more thorough discussion). In 1977, Smith and Glass published the first meta-analysis and showed that psychotherapy was indeed efficacious (Smith & Glass, 1977). The earliest research attempts encountered both methodological problems (for instance, how to address change occurring naturally over time) and ethical problems (for instance, questions concerning the withholding of treatment for control groups). Without a design involving the random assignment of patients to treatment and non-treatment comparison groups, it was difficult to demonstrate the effect of therapy through research. Hence, the use of randomized controlled trials (RCTs) was soon considered the “gold standard”, making it possible to establish that specific psychotherapeutic treatments were effective for patients with specific diagnoses. A natural consequence was that treatments had to be standardized; for instance, treatment manuals were developed, after which the standardized treatments could be tested and compared to ensure that therapists correctly delivered the specific ingredients of the treatment. In 1995, the American Psychology Association (APA) division 12 (Clinical Psychology) presented its criteria for empirically validated therapies with inspiration from the medical community and an emphasis on RCTs. If specific criteria were satisfied by a treatment, the treatment was included on the list. While the intentions were probably good (i.e., identifying specific treatments effective for specific disorders and documenting that psychotherapy works equally well or better than pharmacological treatments), intense confrontations and debates between proponents of different theoretical orientations followed (e.g., Lambert, 2013; Wampold & Imel, 2015). The list was dominated by behavioural and cognitive-behavioural treatments, at the expense of psychodynamic and humanistic approaches, probably reflecting that the former were easier to manualize. The list was found by many to be overly rigid, and the gap between research and clinical practice widened.

In 2005, the APA formulated the “Policy statement on evidence-based practice in psychology” (APA Presidential Task Force on Evidence-Based Practice, 2006), defining evidence-based practice as follows:

the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences.

Throughout the rest of this thesis, the abbreviations EBI (evidence-based treatments and interventions) and EBP (evidence-based practice) will be used. While EBI refers to empirically supported or evidence-based treatments, interventions and techniques (e.g., cognitive therapy for depression), the concept of EBP is much broader. As the above definition implies, the policy statement highlights the psychologist’s role in integrating evidence that is relevant for a particular client and his or her own experiences and suggests that the “best research practice” is the practice best suited for the problem at hand. The statement highlights the need for variety in research designs and approaches, the role of clinical expertise, and knowledge about the individual client and context. Emphasizing variety in research designs also implies that RCTs cannot be viewed as the only means towards valid knowledge.

Over the last decade, EBP (and EBI) has gained increasing influence in psychology and allied disciplines (Greenhalgh, Howick, & Maskrey, 2014; Lambert, 2013). Although the premises of EBP are widely endorsed, its integration into routine mental health care has raised considerable concern, and the debates have continued (Greenhalgh et al., 2014; Kazdin, 2008). One key concern is that treatment research does not reflect the realities of clinical practice, in which patients are more troubled, complex and difficult to treat than patients in psychotherapy research trials (Weisz, Jensen-Doss, & Hawley, 2005; Weisz, 2014). Another central concern involves the term “best research evidence”, which is associated with debates about what qualifies as evidence and how evidence can be integrated in clinical practice (e.g.,

Oddli, 2013). The EBP debates have also characterized the debates in Norwegian academic and clinical communities (Høstmælingen, 2010) and are frequently mentioned in both popular media and professional journals. In the last few years, much of the debate in the Norwegian mental health context has involved the development and implementation of a project involving pathways for the assessment and treatment of mental health and addiction problems by the Ministry of Health and Care Services through the Norwegian Directory of Health (The Norwegian Directorate of Health, 2018). This issue has led to considerable debate and engaged a range of stakeholders, including user groups, mental health care providers, researchers, the general public and policy makers (e.g., Alfarnes, 2015; Halvorsen, 2018; Hofgaard, 2015; Høie, 2015; Tessand, 2015). Critical voices have raised concerns regarding the standardization of the mental health care services provided and have criticized the use of a system originally developed in the somatic context. They have also highlighted the need to individualize treatments to the often-complex needs of the individual clients seeking help for mental health issues. Taken together, this emphasize the continued need to adhere to the research aims and fundamental issues that the work in this thesis considers.

1.3 Common factors – and the process of psychotherapy

The historical focus on establishing the effect of psychotherapy continues to have a major impact on the mental health field (for discussions, see for instance Lambert, 2013; Miller et al., 2015; Wampold & Imel, 2015). This influence involves the development of practice guidelines as well as governmental funding that advocates for and shapes clinical practice so that it is evidence-based (Miller, 2012). As early as the 1930s, however, the psychologist Saul Rosenzweig (1907-2004) claimed that attempts to establish which treatments worked best were misguided. Rosenzweig used the metaphor “at last the Dodo bird said, ‘everybody has won and all must have prizes’” to refer to the competition between various therapies.

Rosenzweig noted that despite the differences among various therapies, the outcomes were generally similar (Rosenzweig, 1936). The equivalence of the benefits of psychotherapies has subsequently been referred to as the dodo-bird effect, implying that all methods of psychotherapy, *when competently used*, are equally successful (Duncan, 2002; Wampold & Imel, 2015). Today, the focus has moved beyond (or at least expanded from) the identification of diagnosis-specific treatments to a larger focus on identifying the factors common across all psychotherapies. This shift rests substantially on research findings that show that different treatment approaches indeed have similar effects (Duncan, Miller, Wampold, & Hubble, 2010; Stiles, Barkham, Twigg, Mellor-Clark, & Cooper, 2006; Wampold & Imel, 2015). While Rosenzweig talked about “unrecognized factors”, we now talk about the *common factors* that include aspects of therapy that are common to all, such as client factors, therapeutic relationship factors, hopes and expectations (Duncan, 2002; Lambert, 2013; Norcross, 2011). Closely aligned are attempts to describe the processes of psychotherapy, including what actually happens in routine therapy sessions and how these events lead patients to change. This focus calls for research on both the *process* (mechanisms of change) and *outcome* of psychotherapy (Castonguay, 2013; Wampold & Imel, 2015), concerning factors that are common both across psychotherapies and across theoretical models (Crits-Christoph, Gibbons, & Mukherjee, 2013). Following, the next section introduces the practice-based evidence paradigm, aiming to further expand the psychotherapeutic knowledge base and improve clinical practice grounded within the context of everyday routine practice (Barkham et al., 2010).

1.4 Moving towards practice-based evidence and routine outcome monitoring

While it is well established today that psychotherapy works, it is also established that it does not work for everyone and that some people deteriorate when they are in therapy (Lambert,

2013). Striving for better outcomes and reaching those individuals who do not benefit from therapy are considered some of the most important tasks for both current and future psychotherapy research (Castonguay, 2013; Lambert, 2010; Prescott, Maeschalck, & Miller, 2017). A growing and influential effort to work for better outcomes and, at the same time, to bridge the widely noted gap between science and clinical practice, involves the use of routine outcome monitoring (ROM) (e.g., Lambert, 2010; Prescott et al., 2017). ROM, as a major part of practice-based evidence, involves the systematic evaluation of patient progress throughout the course of treatment using standardized outcome measures to receive client feedback about mental health status and treatment outcomes, as an integral part of the clinical service provided. According to Castonguay (2013), ROM involves two features with special importance for future psychotherapy research: being conducted in naturalistic settings and being based on standardized measurement systems used as part of routine clinical practice while allowing clinicians to take an active part in research by using data from their own clinical practice. Among the first major proponents of the use of outcome monitoring and feedback was the work by Lambert and colleagues (e.g., Lambert, 2010). The finding that clinicians are not effective in predicting which patients would or would not benefit from therapy (Hannan et al., 2005), brought further attention to ROM. Since then, evidence to support the use of ROM has been growing, and ROM has been shown to improve client outcomes in numerous studies, especially for patients who are off-track or not responding to treatment as expected (Amble, Gude, Stubdal, Andersen, & Wampold, 2015; Bickman et al., 2016; Bickman, Kelley, Breda, de Andrade, & Riemer, 2011; Brattland et al., 2018; Carlier et al., 2012; De Jong et al., 2014; Lambert, 2007; Lambert et al., 2001; Shimokawa, Lambert, & Smart, 2010; Simon, Lambert, Harris, Busath, & Vazquez, 2012; Wampold, 2015). ROM has also been attributed to increase user involvement in mental health care, as the client is the one providing the feedback on their own progress and experiences in therapy (Ulvestad,

Henriksen, Tuseth, & Fjeldstad, 2007). Provided that the feedback is used to inform practice, ROM can, for instance, contribute to the clients' participation in the choice of treatment, how the treatment is applied, as well as whether there is a need to make changes or continue on the therapeutic path one has started. Technological advances have moved the use of ROM from a paper-and-pencil format to electronic administration and the use of apps and mobile devices. This allows for efficient tracking and feedback in real time (Boswell et al., 2015), systems for collecting routine practice data, and insights into the process and patterns of individual changes, which can be used by the client, as well as for therapeutic and organizational development and the development of the psychotherapeutic knowledge base (Barkham et al., 2010). Numerous measures and systems currently exist for collecting, using and interpreting outcome measures over the course of therapy, including the Outcome Questionnaire System (OQ-System) (Lambert, 2015), the Partners for Change Outcome Management System (PCOMS) (Duncan & Reese, 2015), the Clinical Outcome in Routine Evaluation (CORE) system (Barkham et al., 2001), the Systemic Therapy Inventory of Change (STIC) (Pinsof et al., 2009) and the Treatment Outcome Package (TOP) (Kraus, Seligman, & Jordan, 2005). This thesis will not take on the task of describing the different systems in detail. However, drawing parallels with psychotherapy research per se, Wampold (2015) notes that an important aim is to the search for *efficacious components* in the use of ROM, rather than which ROM systems work best.

Concerns around ROM have also been raised, highlighting challenges that remain for the application of ROM to reach its full potential, including experienced clinical utility, professional reluctance, administration and costs (Boswell et al., 2015; Hatfield & Ogles, 2004; Ionita, Fitzpatrick, Tomaro, Chen, & Overington, 2016). Additionally, despite decades of literature supporting the use of ROM, the *actual* use of ROM in routine clinical settings remains low (Goldman & Seybolt, 2015), and a recent Cochrane review calls for *more*

research to support its use (Kendrick et al., 2016). This implies that more knowledge regarding both the use and implementation of ROM as an integral part of the clinical service provided is needed.

In summary, a wealth of psychotherapeutic interventions has proven effective in treating mental illnesses. Furthermore, process research has shown that these interventions share several *common factors*, making the theoretical battles over “what works best” less important. One can assume that all of these interventions work well when competently used. Additionally, the promising development of practice-based research and the use of ROM are aimed at further improving patient outcomes, especially to help those patients who may otherwise deteriorate or perhaps drop out of therapy, as well as to gain insight into the process and outcomes of psychotherapy. This can be argued to be a promising picture. However, there is a tremendous gap between the resources spent developing EBIs (including ROM systems) and the extent to which they are used in routine clinical practice. Hence, this picture is more problematic and calls upon the quite new and rapidly growing field of implementation science.

1.5 Rise of implementation science

History shows that several years may pass from the moment a discovery is made until that discovery is put into practice. With regard to the current situation in the mental health field, the extensive and rapidly growing psychotherapy research literature presents abundant information and knowledge for mental health institutions and different stakeholders to try to get a grasp on. To add to this complexity, implementation efforts in health care service settings are particularly exposed to challenges, as they are dependent on both the actions of every individual stakeholder and organizational influences within the complex context of hospital or health care delivery environments (Aarons, Hurlburt, & Horwitz, 2011).

Additionally, the knowledge base is constantly changing (Lambert, 2013). As we will see, the issue of implementation and its research is quite complicated.

1.6 Implementation frameworks

Implementation research has been defined as “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice”, including the study of influences of health care professionals and organisational behaviour (Eccles & Mittman, 2006). The aim is to improve the quality and effectiveness of the health care services provided. A growing number of theories, models and frameworks describe the implementation of EBIs in several stages and associated with complex multilevel challenges (Aarons, 2004, 2005; Glisson et al., 2008; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Nilsen, 2015). One example is the Consolidated Framework for Implementation Research (CFIR) framework (Damschroder et al., 2009). The CFIR framework outlines five major domains that guide implementation science efforts; the intervention characteristics, the outer setting, the inner setting, the characteristics of individuals involved and the process of implementation; each with a given number of subsumed constructs. For instance, the *inner setting* constructs include the organizational culture and climate, learning climate, leadership engagement and availability of resources, while the *characteristics of individuals* include knowledge and beliefs and personal attributes. Another example is the Exploration Preparation Implementation and Sustainment (EPIS) framework, in which implementation processes are divided into exploration, preparation, implementation and sustainment phases (Aarons et al., 2011). In all of these phases, the characteristics of the intervention to be implemented, patients, health care professionals, organizations and policies of health authorities involve factors that are important for successful implementation. Understanding such factors, often referred to in the

implementation literature as potential barriers and facilitators, may aid in the process of implementation, as these factors may both slow down and enhance implementation initiatives.

1.6.1 Adoption phase of implementation

As noted by Wisdom, Chor, Hoagwood, and Horwitz (2014), there are good reasons to focus both research and implementation efforts on adoption or the earliest phases of implementation. Adoption refers to the complete or partial decision to proceed with the implementation of an innovation (Proctor et al., 2011) and has been outlined as a key outcome for implementation research (Proctor et al., 2011; Wisdom et al., 2014). Here, it is important that achieving the sustained implementation of an innovation is dependent on how the adoption process goes, as it has the potential to both impede implementation and lead to de-implementation. Wisdom et al. (2014) present four different adoption context levels consistent with the previously mentioned CFIR framework: the external system, organizational, innovation and individual context levels; each with associated adoption constructs (e.g., social climate) and mechanisms for change. The work described in this thesis focuses mainly on two of these levels; individual (e.g., attitudes, current practice, demographic factors) and organizational (e.g., leadership, social climate, organizational support) characteristics. The following sections elucidate important barriers to and facilitators of adoption for both EBI and ROM, delineated at the individual and organizational context levels, with a special emphasis on therapist attitudes. First, a brief overview of organizational structure and processes are provided, followed by some thoughts about the concept of attitudes in general and how they are to be measured.

1.7 Organizational structure and processes

Mental health services are conducted within various organizations, resulting in multiple issues to take into consideration when planning new initiatives. Aiming at understanding the structure of organizations, which again might have importance for planning strategies to achieve organizations goals, several perspectives have been developed. For instance, Woods and West (2010) discuss how organizational structure can be viewed in terms of being more mechanistic with top-down decision-making, regulations and control; with a more flat hierarchy, involving frontline personal in decision making and encouraging communication; or with a team-based structure emphasizing communication and collaboration within and between teams. When it comes to the implementation literature on organizational processes, important processes to adhere to have, for instance, included leadership and leadership development, as well as organizational culture and organizational climate, each which might again have complex interactions with multiple factors (see, e.g., Aarons, Moullin, & Ehrhart, 2018, for a more thorough discussion). The complexity can, for instance, be seen in relation to how “good” leadership is dependent on the context of study (e.g., different cultures, large organizations, teams), and that development of leadership skills must therefore take into account the setting where one is to lead (Woods & West, 2010).

1.8. Attitudes and the measure of attitudes

Attitudes have been defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (Eagly & Chaiken, 1993, p. 1). Attitudes have affective aspects (e.g., “how do I feel about X?”), behavioural aspects (e.g., “how do I act concerning X?”) and cognitive aspects (e.g., “what do I think about X?”), and differ both in strength and valance (Maio, Haddock, & Verplanken, 2018). Although some attitudes have been described as relatively stable, studies have shown that attitudes are likely

to be temporarily constructed at the time that the evaluation is needed and to be sensitive to contextual influences, including ones mood and bodily state (Bohner & Wänke, 2002). As attitudes, like many other psychological phenomenon, are not directly observable, to measure them requires an aim for proper operationalization of the construct, the measurement of several aspects, and a solid theoretical foundation (Friborg, 2010). Direct or explicit measures of attitudes are one common method, asking people to report their evaluations on statements, with responses provided in numerical scales such as, for instance, Likert-scales. There are limitations to such measurement formats (see section 5.4.3) and one needs to take into consideration that multiple factors can be involved in people's evaluations. This includes people's interpretation of the questions or statements, the process of retrieving or constructing an evaluation, and the translation of ones evaluation to the response format provided (Bohner & Wänke, 2002). The relationship between attitudes and behaviour has received much research attention, with regard to *if*, *when*, and *how* attitudes predict behaviour (Maio et al., 2018). Although this thesis will not elaborate on these frameworks, several theoretical frameworks have been developed to describe the relationship between attitudes and behaviour, including the Theory of Planned Behavior (Ajzen, 1991), the Mode Model (Fazio, 1990), and theories regarding attitude change, such as the Cognitive Dissonance Theory (Festinger, 1957).

1.9 Barriers to and facilitators of EBI implementation

1.9.1 Roles of individual and organizational factors in the adoption of EBI

In the literature addressing barriers to and facilitators of the adoption of EBI, several themes emerge at the individual and organizational context levels. In a survey of 1630 psychotherapists, the most frequently mentioned barriers included training issues (e.g., a lack of time, high cost and insufficient training), health professionals' attitudes (e.g., thinking that

on-going practice is satisfactory, belief that treatment must be easy to integrate with existing therapeutic approaches) and contextual and institutional factors (e.g., lack of administrative support, extensive caseloads) (Cook, Schnurr, Biyanova, & Coyne, 2009). Practical barriers, for instance, in terms of insufficient time, costs and resources, have been found to be substantial barriers in several other studies as well (Dalheim, Harthug, Nilsen, & Nortvedt, 2012; Nelson, Steele, & Mize, 2006; Pagoto et al., 2007; Stewart, Stirman, & Chambless, 2012). When it comes to examples of facilitators, a mix method study conducted as part of a children's mental health services reform highlighted the positive value of on-going consultations during implementation, for instance, allowing health professionals to discuss experienced barriers, case examples, and adaptations, as well as share experiences with others (Barnett et al., 2017).

1.9.1.1 Therapists' attitudes towards adopting EBI

At the individual level, mental health professionals' attitudes are considered an important factor associated with the adoption and use of EBI (Greenhalgh et al., 2004; Wisdom et al., 2014) and have received increasing attention in the development of implementation science. Nevertheless, the literature points to a continued need to expand knowledge, for instance, with regard to its relationship with organizational factors (Aarons, Cafri, Lugo, & Sawitzky, 2012; Powell et al., 2017). Therapists' attitudes towards change and innovation may influence the initial process of deciding whether to try out new practices and, thus, the actual implementation process as well as the subsequent sustained use of an intervention (Aarons, 2004; Aarons et al., 2012). Studies have shown a mixed picture in which mental health professionals have differed considerably with respect to positivity and ambivalence towards EBI (Aarons, 2004; Aarons et al., 2012; Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2013; Nelson et al., 2006; Pagoto et al., 2007; Stewart et al., 2012). Professional attitudes have also

been found to vary in relation to individual and demographic characteristics. For instance, higher educational status is associated with more favourable attitudes towards adopting EBI given its intuitive appeal (Aarons, 2004). Additionally, females have reported lower time and administrative burdens in learning EBI than males, and practitioners with lower educational levels have reported placing more value on organizational support for learning EBI than those with higher educational status (Aarons et al., 2012). At the same time, individual decisions to adopt an intervention are also influenced by and interact with several organizational factors, such as leadership, organizational norms and values, social climate and organizational support, as well as policies and system factors (Aarons, 2006; Aarons et al., 2011; Damschroder et al., 2009; Greenhalgh et al., 2004; Wisdom et al., 2014). For instance, Aarons (2006) found associations between transformational (i.e., charismatic, visionary) and transactional (i.e., inspirational, motivating) leadership styles and more positive attitudes by professionals towards adopting new evidence-based practices. Furthermore, a recent study by Powell et al. (2017) among child serving agencies that were part of an effort to increase the uptake of EBIs highlighted implementation climates, with high levels of educational support and proactive leadership being associated with more positive provider attitudes.

Although some studies have suggested that professionals have positive attitudes towards EBI, the same studies show that these professionals report limited use of EBI (Graham, Robertson, & Anderson, 2013; Snibsøer, 2012). For instance, a survey among Norwegian nurses working in the field of cancer treatment, although not conducted in the mental health field, indicated that respondents participating in a post-graduate degree programme in EBP had positive attitudes towards EBP, though they practised EBP-related activities to a lesser extent (Snibsøer, 2012). Additionally, the premises of “evidence” have been elucidated in several studies dealing with mental health professionals’ attitudes. A review of survey studies on psychologists’ attitudes (Lilienfeld et al., 2013) suggested several

principal sources of resistance, including therapists relying solely on intuitive judgement or clinical intuition to judge therapeutic efficacy, as well as mischaracterizations of the evidence-based concept (e.g., beliefs that evidence may only come from RCTs, beliefs that a specific treatment fits the needs of all patients equally well). Misunderstandings about the principles of EBP have also been discussed by others (Luebbe, Radcliffe, Callands, Green, & Thorn, 2007; Thyer & Pignotti, 2011). In a qualitative study by Stewart et al. (2012), concerns about research among interviewed psychologists included the belief that research is overly controlled (e.g., not generalizable, manualized treatment protocols that are too narrow and dogmatic) and that it overlooks the human and interpersonal component of therapy. The same study noted that clinicians were positive about knowing “what works”, but they wanted to learn whether and how they could integrate and fit EBI or specific components of EBI into their existing practice and did not want to follow treatment manuals rigidly.

1.10 Barriers to and facilitators of ROM implementation

1.10.1 Roles of individual and organizational factors in the adoption of ROM

As for EBI, research interest on ROM has shifted to issues of implementation. As discussed above with regard to the general implementation literature, the subject of barriers may seem familiar. Hatfield and Ogles (2004) and Boswell et al. (2015) divided barriers into philosophical and practical barriers. While practical barriers include issues such as costs and financial burden (e.g., costs of systems, technological infrastructure), time, administration, training, supervision and turnover, barriers of the more philosophical type concern, for instance, the applicability and relevance of outcome measures, whether they manage to assess clinical change, and professionals' concerns.

1.10.1.1 Therapists' attitudes towards adopting ROM

Studies have suggested that therapists might be interested in using ROM, although they do not use ROM due to both practical and philosophical barriers (as described above). Issues described by professionals include fear about being evaluated (Norman, Dean, Hansford, & Ford, 2014), the need for clinical utility (Sharples et al., 2017), fear that ROM might interfere with forming a therapeutic alliance (Youn, Kraus, & Castonguay, 2012) and concerns about the intentions underlying the use of ROM, which may vary among clinicians and administrators (Boswell et al., 2015). Miller et al. (2015) went so far as to describe ROM as a revolution in psychotherapy practice but noted that it is in “danger of missing the point” if one does not consider the therapist’s contribution. As pointed out by De Jong et al. (2014), not all therapists use the feedback they receive. The authors suggest that implementation efforts need to address therapist attitudes and their motivation and commitment for ROM, which may predict both the actual use of feedback and the rate of client progress. Understanding therapist-related factors is therefore of major importance.

1.11 Measurement issues in implementation science

A review by Chaudoir, Dugan, and Barr (2013) highlights two methodological barriers to implementation science efforts: a lack of agreement regarding constructs hypothesized to affect implementation success and the measures of these constructs. Closely aligned with this, Martinez, Lewis, and Weiner (2014) highlight the use of frameworks, theories and models as the most critical measurement issues in implementation science that potentially hinder the developing knowledge base. Additionally, Martinez et al. (2014) describe how theory and measurement must be seen in relation to each other, as theories define the content of and relationships among constructs, and the measurement of a construct may aid in modifying and

improving theory. Given the complex multilevel nature of implementation processes, it is unsurprising that measuring implementation constructs is challenging.

Psychometrically strong instruments that actually measure what they are intended to measure are necessary to draw conclusions and generalize findings from implementation research. Several reviews draw attention to the fact that many measures of implementation constructs exhibit weak psychometric properties (Chaudoir et al., 2013; Chor, Wisdom, Olin, Hoagwood, & Horwitz, 2015; Lewis et al., 2015). Weak psychometric properties have been highlighted as a critical measurement issue that can cast doubt on study findings and ultimately on the foundation of both implementation science and the search for implementation strategies that facilitate the spread of EBI into real-life clinical service settings (Lewis et al., 2015; Martinez et al., 2014). In a review by Chaudoir et al. (2013), criterion-related validity was reported for 48.5 % of the identified instruments, while in the review by Chor et al. (2015), only 52.5 % of measures aiming at the adoption level of implementation were reported to provide psychometrics at all. The Society for Implementation Research Collaboration (SIRC) Instrument Review Project (Lewis et al., 2018; Lewis et al., 2015) outlines limitations and gaps in the methodology and scope of existing instrument reviews, including those of Chaudoir et al. (2013) and Chor et al. (2015), and aims to provide a comprehensive review and open access repository of instruments that assess constructs relevant for implementation delineated in the CFIR and Implementation Outcomes Framework (Proctor et al., 2009). Constructs were here defined as “factors inside domains (characteristics of the intervention, characteristics of individuals involved in the implementation, outer settings, inner setting, process, implementation outcomes and client outcomes) that may predict, moderate, or mediate EBI dissemination and implementation, as well as implementation outcomes” (p. 3). The review by Lewis et al. (2015) identified more than 420 instruments covering 48 different implementation constructs. However, the

preliminary results of the SIRC project suggested that few of these instruments were psychometrically strong or had been developed through an adequately systematic approach (Lewis et al., 2015). One of the measures that *was* highlighted as psychometrically strong was the Evidence-Based Practice Attitude Scale (EBPAS), which the current thesis employs in its extended version (see section 3.3.2). As the literature and initiatives described above indicate, there is a continuing need to identify instruments with sound psychometric properties, which is an issue that has become a high priority in the field of implementation science (Lewis et al., 2015). Without such measures, further advances in the developing implementation knowledge base are impeded.

2. Research aims

Although the field of implementation science, aiming for better integration of evidence into routine health care settings, has grown, there is still much to learn. One of the main issues include the provider factor, professionals' attitudes towards adopting new interventions, the relationship between attitudes and organizational factors, and how these factors are to be measured. These issues are addressed by the present thesis through:

- Adaptions of shorter versions of a previously validated implementation instrument measuring professionals' attitudes toward adopting an EBI, and evaluation of their psychometric properties;
- Identification of provider demographic and organizational predictors of attitudes toward adopting EBI; and
- Exploration of how attitudinal domains relate to the reported use of standardized instruments as a means of treatment planning and evaluation, which was seen as central elements to the use of ROM.

2.1 Paper 1

In the first paper, we called for short, valid instruments for measuring factors that facilitate or hinder implementation efforts, specifically therapists' attitudes towards adopting EBIs. The Evidence-Based Practice Attitude Scale-50 (Aarons et al., 2012) was translated into Norwegian; the number of items was reduced in an iterative collaboration with the original US instrument developers; and the psychometric properties of the adapted version were examined in both our Norwegian sample and a US sample of mental health service providers.

2.2 Paper 2

In the second paper, we aimed to gain insight into factors that influence the adoption of EBI, specifically, potential differences between staff roles and positions as well as individual and organizational predictors of attitudes towards adopting EBIs, as measured with the adapted EBPAS-36 instrument.

2.3 Paper 3

In the third paper, we wanted to gain insight into mental health professionals' attitudes that influence the adoption of ROM through the adaption of the EBPAS-50 instrument and an exploration of how attitudinal domains relate to clinicians' current use of standardized instruments for treatment planning and evaluation.

3. Methods

3.1 Data material

The data for the present project were provided by two online surveys distributed via invitation emails from the Norwegian Psychological Association (NPF) and the Norwegian Nurses Organization, the professional group for nurses in mental health and substance abuse (SPOR). Survey 1, which explored therapist attitudes towards the adoption of EBI, was sent to half of the members of the NPF (psychologist sample 1, $N = 3598$) and to all of the members of the SPOR (nurse sample 1, $n = 1436$). Survey 2, which explored therapist attitudes towards the adoption of ROM, was sent to the other half of the members of the NPF (psychologist sample 2, $n = 3654$) and all of the members of SPOR (nurse sample 2, $n = 1436$). Both surveys were also announced on the Internet sites of these two organizations. The invitation emails provided information about the study and a web link that provided access to the corresponding survey. The data were collected through online SurveyMonkey software. Data for survey 1 were collected from May to October 2014, while data for survey 2 were collected from May to July 2014 for psychologist sample 2 and from February to March 2015 for nurse sample 1. One and two reminders were sent to nurse sample 1 and psychologist samples 1 and 2, respectively, for both surveys. All members of the sample populations had the opportunity to participate in random drawings for one iPad mini or two professional books, the Bergin and Garfield's Handbook of Psychotherapy and Behaviour Change (Lambert, 2013) and the Norwegian book *Jobb kunnskapsbasert: en arbeidsbok* (Nortvedt, Jamtvedt, Graverholt, Nordheim, & Reinar, 2012), as incentives for participation.

In addition, to address paper 1's aim of validating the EBPAS-36 in Norwegian and US samples, data from a sample of mental health service providers ($N = 418$) recruited from clinics providing mental health services in San Diego County, California, were included as described in paper 1.

3.2 Sample

For survey 1, a total of 856 psychologists and psychology students (24.0 % response rate for psychologist sample 1) and 191 nurses (13.3 % response rate for nurse sample 1) completed the survey ($N = 1047$). In paper 1, subjects who did not complete any of the EBPAS-50 items were excluded, as were those with missing data for entire subscales, >1 item on a 3-item scale or >2 items on a 4-item scale ($N=209$). Thus, the final sample for paper 1 included data from 838 Norwegian respondents as well as the 418 respondents from the US data material mentioned in the data material section. For paper 2, subjects who did not complete any of the EBPAS-36 items and those with missing data on all of the EBPAS-36 subscales were excluded ($n = 192$). The final sample ($N=855$) for paper 2 included 63 psychology students in clinical training (7.4 %), 671 licensed psychologists (78.5 %) and 121 nurses (14.2 %). Students were excluded from the sample for paper 2, as the focus in this paper was on experienced practitioners in work-related settings.

For survey 2, a total of 734 psychologists and psychology students (20.1 % response rate for psychologist sample 2) and 360 nurses (25.1 % for nurse sample 1) completed the survey ($N = 1094$). For paper 3, subjects who did not complete any of the 50 items from the EBPAS-50 ROM version were excluded, as were those with missing data for entire subscales, >1 item on a 3-item scale or >2 items on a 4-item scale ($n = 300$). Thus, the final sample for paper 3 included data from 794 respondents. Students and providers who did not work as clinicians were excluded in this case, given paper 3's focus on practitioners as end-users in clinical service settings ($n = 662$).

3.3 Measures

3.3.1 Demographics

The demographic variables in *all* papers included gender, age, highest level of education, professional discipline and number of years working in substance abuse and/or mental health service. The age response categories were < 30 years, 31–40 years, 41–50 years, 51–60 years, and > 60 years. Level of education in the survey data included 14 categories for psychologist samples 1 and 2 and 5 categories for nurse sample 1. For the psychologist samples, the education categories included 1) accomplished cand. psychol. degree; 2-11) clinical specialist degrees (clinical psychology for adults, clinical psychology for children and youth, psychological habilitation, addiction/substance abuse, neuropsychology, family psychology, gerontopsychology, clinical psychotherapy, community psychology, organizational psychology); 12) Ph.D.; 13) other accomplished continued education; and 14) unfinished continued education. For the nurse sample, these categories included 1) bachelor's degree in nursing; 2) other continued education; 3) master's degree in nursing; 4) Ph.D.; and 5) unfinished continued education. For the analysis, education was recoded into 5 groups for psychologists: 1) initial cand. psychol degree; 2) both a Ph.D. and a clinical specialist degree; 2) Ph.D.; 3) clinical specialist degree; and 4) other continued education. For the nurses, education was recoded into 4 categories: 1) initial bachelor's degree; 2) Ph.D.; 3) master's degree; and 4) other continued education. The professional disciplines included the categories student, psychologist and nurse. In addition, papers 2 and 3 both included the demographic variable of working as a clinician. Here, psychologists were asked to indicate whether they worked as clinicians or not, and nurses were asked to indicate whether they worked directly with patients. Paper 2 included the respondent's workplace. The surveys provided 19 alternatives for nurses and 15 for psychologists. An "other" category with the possibility of specifying one's own workplace in writing was also provided for respondents who did not

belong to any of the predefined categories. As the respondents had the opportunity to indicate multiple response categories, workplaces were manually recoded into the following categories: 1) outpatient units - adults; 2) outpatient units - children and youth; 3) outpatient unit – substance abuse; 4) inpatient unit >2 months; 5) inpatient unit <2 months; 6) combined research and/or educational position and clinical position; 7) research and/or education; 8) private practitioner with subsidies (including only psychologists with a clinical specialist degree working in private practice with operating subsidies from the Norwegian state, meaning that patients' cost of treatment exceeds the costs covered by public help); 9) private practitioners (both psychologists and nurses) without subsidies (see above); 10) governmental position (e.g., family counselling services); 11) municipal health and care services (e.g., prevention practice); and 12) other, including clinicians working in a combination of work settings, e.g., both inpatient and outpatient units. Paper 2 also included having leadership responsibilities or not.

For the US data material used for paper 1, the demographics provided were the participant's gender, age, ethnicity, level of education, primary discipline, years worked in mental health, and years worked in the current agency.

3.3.2 Evidence-based Practice Attitude Scale (EBPAS)

3.3.2.1 EBPAS general comments and translation procedure

The EBPAS 50-item version (see description below) constitutes one of the main measures applied, refined and discussed in the work described in the present thesis. For the Norwegian translation of the EBPAS-50, some translation adaptations were carried out with regard to the conceptual definitions for the written instructions of the instrument. These adaptations are also described in paper 1. The instructions of the original English version specified that “evidence-based practice” referred to any intervention supported by empirical research. As

this definition was considered narrow or misleading, the Norwegian instructions were limited to only EBIs (i.e., therapies, interventions, methods). This adaptation was considered important, as it marked the major distinction between the more comprehensive concept of EBP and EBI, as outlined in section 1.2.

The Norwegian translation procedure for the EBPAS-50 is also described in paper 1, following the recommended guidelines for the cross-cultural translation, adaptation and validation of instruments (Sousa & Rojjanasrirat, 2011). The translation was conducted by MR in 2013 and then back-translated by a professional. Deviations between the original and the back-translated version were solved through a consensus discussion between MR and IS before the final Norwegian version was reviewed, revised and approved through an iterative process leading to consensus between MR and the original EBPAS-50 author, GAA. The measure was then given to a sample of clinicians and psychology and Ph.D. students, and their comments regarding readability were used to finalize the translation.

3.3.2.2 Evidence-Based Practice Attitude Scale-50 (EBPAS-50)

The EBPAS-50 is a 50-item instrument developed to assess mental health and social service providers' attitudes towards adopting EBP (Aarons et al., 2012). The 50 EBPAS items cover 12 subscales: appeal (four items), requirements (three items), openness (four items), divergence (four items), limitations (seven items), fit (seven items), monitoring (four items), balance (four items), burden (four items), job security (three items), organizational support (three items), and feedback (three items). The 12 subdomains are summed to a higher-order total scale score representing the respondent's global attitudes towards EBP. The items are formulated as statements, and responses are given on a 5-point Likert scale ranging from 0 ("not at all") to 4 ("to a very great extent"). To assess different perspectives and reduce response biases, 23 items belonging to five subscales (divergence, limitations, monitoring,

balance, and burden) are negatively framed. According to the EBPAS-50 scoring instructions, for the total score, these items are reverse scored, and the mean subscale scores are recomputed before a mean score is computed for the total EBPAS-50 item score. A higher total score indicates a more positive attitude towards the adoption of EBP.

3.3.3 The Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic)

Organizational features and work climate were measured with the Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic). This instrument was developed from organizational theories and consists of 129 items assessing psychological and social factors related to the work environment (Skogstad et al., 2001). The instrument is divided into three domains: work-related tasks, the social and organizational domain and the individual domain. For paper 2, six subscales (20 items) were used. These subscales were chosen following an informal discussion with a group of colleagues, where they provided feedback on which subscales they perceived as particularly relevant. Based on the information they provided, a consensus discussion between two authors (MR and IS) then led to the inclusion of the following subscales as most relevant for the aims of the study: 1) *quantitative job demands* (4 items), measuring the amount of work experienced and the time pressure; 2) *control over decisions* (5 items), measuring the influence on decisions regarding one's own workplace, workload, work methods and co-workers; 3) *support from colleagues* (2 items), asking for an assessment of social interaction when collegial assistance is needed; 4) *support from the nearest superior* (3 items), asking for an assessment of social interaction when a superior's assistance is needed; 5) *empowering leadership* (3 items), assessing encouragement from superiors in decision making, sharing personal opinions and the development of skills; and 6) *social climate* (3 items), measuring whether social climate at the workplace is

encouraging/supportive, distrustful/suspicious or relaxed/comfortable. A single item from the organizational domain was used: “What is the climate like in your work unit? Rigid and rule-based”. Responses were given on a 5-point Likert scale, ranging either from 1 (“very little or not at all”) to 5 (“very much”) or from 1 (“very seldom or never”) to 5 (“very often or always”), as appropriate. The QPS has acceptable psychometric properties (Wannstrom, Peterson, Asberg, Nygren, & Gustavsson, 2009a, 2009b).

3.3.4 Attitudes towards ROM.

In paper 3, attitudes towards ROM were measured with a rephrased version of the Evidence-Based Practice Attitude Scale-50 (EBPAS-50, see section 3.3.2.2) (Aarons, 2004; Aarons et al., 2012), adapted and translated into Norwegian for the present study. The questions were edited herein and framed to ask about attitudes towards adopting ROM.

3.3.5 Current use of standardized instruments

For paper 3, the assessment of the current use of standardized instruments as a means of treatment planning and evaluation included the following questions: “How often do you use standardized tests and measurements when planning your clinical work?”; “How often do you use standardized questionnaires as part of monitoring treatment response?”; and “How often do you use standardized questionnaires as part of evaluating treatment effect?” Responses were given on a 5-point Likert scale, ranging from “very seldom/never” to “very often/always”.

3.3.6 Open-comment fields

For both surveys, open-commentary fields were provided so that respondents had the opportunity to supply supplementary information where appropriate, or to convey personal opinions. Thus, feedback on content and the survey overall could be provided.

3.3.7 Conceptualization

Survey 1 and, thus, articles 1 and 2 concerning attitudes towards adopting EBI were framed within the context of “specific research-supported interventions only” (i.e., therapies, interventions, methods), as further elaborated in section 3.3.2.1. For survey 2, article 3, the instructions of the EBPAS-ROM instrument measuring attitudes to ROM were specified as follows: “The following questions concern your attitudes to systematically using routine outcome measures to obtain feedback on patients’ problems and change throughout the course of treatment. Routine outcome measures refer to standardized instruments assessing mental health status, in which health personnel or patients report current status on common mental health issues. The instruments can be administered either on paper or through web or software support systems”.

3.4 Treatment of missing

In article 2, missing EBPAS-36 and QPSnordic item scores were imputed using the expectation maximization (EM) method. Values were imputed separately for each subscale’s set of items. In article 3, missing EBPAS ROM-version items were imputed using the EM method. Values were imputed separately for the set of items belonging to each subscale, following the exclusion of respondents with <1 missing item on 3 item scales and <2 missing items on 4-7 item scales, as described in the procedure and sample section.

3.5 Statistical analysis

As part of instrument development and adaption, factor analysis was employed for the evaluation of item reduction and validation of the factor structure. Various regression models were developed for predictive analyses. Additionally, descriptive statistics and correlation analysis assessed the strengths of the associations as well as the estimation of internal consistency.

In article 1, confirmatory factor analyses (CFA) for the evaluation of item reduction were conducted in Mplus v7.2. The model was specified according to the 12 subscales of the original EBPAS-50. The Norwegian sample was split for the reduction and the validation process, using half of the sample as an exploratory sample to identify the shorter version and the other half to validate the instrument's factor structure. For the US sample, the same sample was used for both the reduction and the validation processes. As the primary goal was to reduce the length of the EBPAS-50 while retaining the original factors, a minimum of three items per factor were retained. Thus, subscales containing four or more items were shortened based on a combination of the following criteria: (1) retention of items with the highest factor loadings; (2) evaluations of modification indices, where coupled items with the highest modification indices were considered for reduction; and (3) items that are conceptually similar or add unique information. The reduction procedure was performed separately for the US and Norwegian samples, allowing comparison and discussion of the resulting versions before the establishment of a final consensus version. The final measurement model was then evaluated in the validation sample.

In article 2, to develop a second-order model of attitudes towards the adoption of EBI for further predictive analysis, a CFA with model specification based on the EBPAS-36 was conducted in Mplus v8. Factor scores were then saved in Mplus and subjected to an exploratory second-order principal component analysis (PCA) using SPSS v25. SPSS v25

was also used for correlation analysis, t-tests and regression analysis. Hierarchical multiple regression models were built to examine the predictive value of the demographic background variables and social and psychological factors at work for attitudes towards adopting EBI. For all analyses, predictor variables were entered in the same predefined blocks. The order in which variables were entered was determined to examine whether staff roles contributed significantly to the model after controlling for all other predictor variables: block 1: gender, age and years of experience; block 2: level of education; block 3: workplace and the indicator of being employed at a work site systematically employing one or more EBI; block 4: QPSnordic subscales and the single QPSnordic item regarding the social climate being rule-based and rigid; and block 5: staff role as a clinician, holding a position as a psychologist or a nurse and having leadership responsibilities.

For article 3, a CFA for item reduction evaluations and validation was conducted in Mplus v8.0 following the same procedure described for article 1 above. Only subscales rephrased to directly ask for attitudes towards ROM were retained (requirements, appeal, limitations, fit, burden, job security, organizational support), as were the subscales of monitoring and feedback, which were perceived to be relevant for the implementation of ROM. Correlational analysis and regression analysis were conducted in SPSS v25. Regression models were built to examine the predictive value of attitudinal domains for clinicians' reported use of standardized instruments as a means of treatment planning and evaluation. In model 1, to assess the predictive value of each subscale, regression analysis was conducted separately for each subscale, adjusted for demographic variables. In model 2, to assess the predictive value of each subscale when adjusted for the other subscales, all subscales were entered together with the demographic variables. In model 3, the total scale score representing global attitudes towards adopting ROM was entered together with the covariates gender, age and years of experience.

For articles 1-3, the parameters in the CFAs were estimated with the full information maximum likelihood procedure (FIML), and robust standard errors (MLR) were used to accommodate non-normal item distributions. To assess model fit, the following indices were used: χ^2 , root mean square error of approximation (RMSEA), standardized root mean error (SRMR) and the comparative fit indices (CFIs). RMSEA values close to .06, SRMR close to .08 and CFI close to 0.95 indicate an acceptable model fit, in accordance with Hu and Bentler's cut-off recommendations (Hu & Bentler, 1999).

3.6 Ethics

All respondents provided informed consent according to the recommendations of the Norwegian data protection authority for the project. Completion of the surveys was accepted as consent to participate in the project.

4. Main results

4.1 Paper 1

The collaborative Norwegian and US EBPAS-50 item reduction process resulted in consensus on a 36-item instrument named the EBPAS-36, in which the original 12-factor model was maintained. The final model was adequately validated in the validation sample. The EBPAS-36 exhibited acceptable model fit, as indicated by a low degree of misspecification errors and a fair incremental fit for both the US and the Norwegian data, as well as good internal consistency (Cronbach's α) for the total EBPAS-36 score and adequate-to-excellent internal consistency for the subscales (see Table 1). Adequate psychometric properties in the samples from both US and Norway indicated cross-cultural validity, and the instrument was considered brief, pragmatic, user friendly and broad in scope.

4.2 Paper 2

Through hierarchical regression analysis, the results of the second paper showed that provider demographics, social and psychological factors at the workplace and staff role predicted attitudes towards adopting EBI. For instance, male gender, having an older age and working in private practice predicted more negative global attitudes, while working in academia, receiving social support from colleagues and empowering leadership predicted more positive global attitudes towards adopting EBI. Three second-order attitudinal components were also identified through the exploratory second-order PCA: *professional concern* (e.g., perceived limitations of EBI, balance and divergence between clinical practice and science, negative perceptions of monitoring, and a lack of openness to new practices); *attitudes related to work conditions and requirements* (e.g., time and administrative burdens of learning new interventions, job security and perceived organizational support); and *attitudes related to fit and preferences* (e.g., autonomy and fit with the values, preferences and needs of both patient and provider). The prediction outcomes for the specific attitudinal components are presented in paper 2 and will not be discussed in detail here. One of the findings was that younger respondents held more positive attitudes than older respondents on *attitudes related to work conditions and requirements*, capturing issues of organizational support, education, training, job security and interventions being imposed, and that experiencing an empowering leadership style predicted greater willingness to use interventions based on fit and shared preferences and lower professional concern. Overall, the findings highlight the need for implementation strategies to be tailored to the various needs and values of the professionals as well as the context in which they work.

4.3 Paper 3

To measure attitudes towards adopting ROM, the adaptation of the EBPAS instrument resulted in a 27-item instrument measuring 9 of the original 12 EBPAS subscales, named EBPAS-ROM. The validation process resulted in a model fit that was adequate in terms of low misspecification error and good with regard to incremental fit, as well as showing good internal consistency for the total scale score and adequate-to-excellent consistency for the subscales (see Table 1). All EBPAS-ROM subscales, as well as the total scale, showed concurrent value by predicting clinicians' reported use of standardized instruments for treatment planning and evaluation, either independently after adjusting for demographic variables (models 1 and 3) or when adjusted for the other subscales (model 2). For instance, perceived limitations of ROM (e.g., too narrowly focused, not suitable for patients with multiple problems and hindering the connection between therapist and patient) predicted less use of standardized instruments for treatment planning, on-going evaluation of treatment and evaluation of effects when controlling both for demographic variables and the other subscales. Furthermore, the experience of more organizational support (e.g., training, on-going support and receiving educational credits) predicted more reported use of standardized instruments for on-going evaluation of treatment.

Table 1 Main results of EBPAS-36 and EBPAS-ROM: Model fit and internal consistency

Instrument validation	RMSEA (90 % C.I)	SRMR	CFI	TLI	α^1
EBPAS-36 US ²	.045 (.040–.049)	.05	.93	.91	.79 (.60–.91)
EBPAS-36 Norwegian ²	.052 (.047–.056)	.07	.91	.89	.86 (.61–.92).
EBPAS-ROM ³	.053 (.046–.059)	.06	.93	.92	.85 (.70–.93)

¹Cronbach's α reported as total scale score (range subscales); ² Paper 1; ³ Paper 3

5. Discussion

The following discussion begins with a section on instrument development conducted as part of this thesis, followed by a further discussion of the interpretations and implications of our findings and general methodological considerations.

5.1 Instrument refinement

Instrumentation issues have been considered a substantial barrier that requires attention for further developments in implementation science (Lewis et al., 2015; Martinez et al., 2014) and consequently for the practical goal of securing implementation initiatives in clinical service settings. An important part of the current thesis therefore involves examining the psychometric properties of the translated and adapted instruments. This is a task of major importance considering the importance of establishing instruments with sound psychometric properties in the implementation field. Both strengths and limitations arise in our effort to perform this task, as outlined below. We argue that the instrument adaptations followed the recommended steps by reporting how the instruments were adapted and the effect on the adaptations with regard to the psychometric properties of the instrument (Martinez et al., 2014), and by adapting prior instruments tailored to focus on specific practices, such as the EBPAS-ROM (Moullin, Ehrhart, Torres, & Aarons, 2018).

First, it is important to note that our primary goal was to develop brief and pragmatic measures that represented the original EBPAS constructs. This goal allowed us to build upon previous well-developed instruments and facilitated continued testing and development of previously validated instruments with different samples and in different contexts (Martinez et al., 2014). The item removal procedure for both the EBPAS-36 and EBPAS-ROM focused on keeping items that preserved the content and meaning of the subscales in addition to

information about factor loadings and scale reliability. Both the EBPAS-36 and the EBPAS-ROM were concluded to have adequate psychometric properties.

5.1.1. Reliability

Reliability was assessed as a measure of internal consistency through Cronbach's alpha (α). Internal consistency aims to show whether items that propose to measure the same general construct produce similar scores in a particular sample (Streiner, 2003). It is common to describe α -values of ≥ 0.70 as acceptable, ≥ 0.80 as good and $\geq .90$ as excellent. However, several factors influence the appropriateness of this interpretation, as outlined below. Except for four of the subscales from the Norwegian EBPAS-36 that had an α -value under 0.70, all other subscales and total scale scores were above or well above 0.7. Compared with the α values of the US EBPAS-50 (Aarons et al., 2012), both the EBPAS-36 and the EBPAS-ROM exhibited lower α values. This can be expected as reducing the number of items often leads to lower internal consistency (Streiner, 2003). Additionally, in the reduction process, attention was paid to excluding items within subscales with content overlap with other items as well as retaining items that added unique information. This strategy might have resulted in subscales with a broader scope, which again is known to lower the α value. Furthermore, Cronbach's alpha is a so-called "lower bound index", implying that it is quite conservative, as it builds upon an assumption of tau-equivalence. In papers 1 and 3, we argued that the reduced internal consistency is compensated by the lower burden of completing an instrument with fewer items, thus strengthening the validity of the scale through less "satisficing", meaning fewer response biases related to irritated or fatigued respondents (Streiner & Norman, 2014). This point is especially relevant to retaining the original dimensions of attitudes with the aim of covering the complexity of attitudes.

5.1.2. Validity

Validity can be defined as “the degree to which evidence and theory support the interpretations of test scores for proposed uses” (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014). In that regard, a strength of both the EBPAS-36 and the EBPAS-ROM is that they are built upon the well-known and previously validated EBPAS instruments (Aarons, 2004; Aarons et al., 2012), which were developed from theories of dissemination and implementation in mental health and consultations with mental health service providers and researchers. Furthermore, the construct validity of the adapted EBPAS-36 and EBPAS-ROM was statistically assessed through CFA modelling of the original EBPAS subscales, with acceptable model fit results. Nevertheless, there *is* a general concern in implementation science regarding the definition of constructs, which is further discussed in sections 1.11 and 5.4.4.

Article 1 allowed us to compare psychometric properties in two different national contexts; adequate results in both settings increase cross-cultural validity. Article 2 expanded the assessment of validity by supporting the concurrent validity of the instrument through predictive analyses of how provider demographic and organizational factors predict attitudes towards adopting EBIs. Additionally, in article 3, the predictive analyses supported the concurrent validity of the EBPAS-ROM by exploring both the subscales and the total scale’s ability to predict the outcome, which was clinicians’ use of standardized instruments for treatment planning and evaluation.

5.1.3. Practicality and pragmatism

Martinez et al. (2014) highlight practicality and pragmatism as the most important instrumentation issues, given the real-world context of implementation science. These two

terms are often used interchangeably. Glasgow and Riley (2013) discuss the importance of instruments being important to stakeholders, having a low burden, being broadly applicable and useful for benchmarking, having norms, and being unlikely to cause harm, psychometrically strong and related to theory or models. Martinez et al. (2014) highlight costs, accessibility, the length of instruments and easily understood language as the main factors to consider when developing instruments. While practicality and sound psychometrics might be issues that seemingly compete with each other when developing and choosing an instrument for an implementation initiative, we argue that the adapted instruments described in this thesis attempt to balance both agendas. Thus, these instruments exhibit practicality in that they are openly available at no cost and that their length is reduced. Therefore, they are easier and less time consuming for use in resource-demanding settings, while reducing the chance of bias due to irritated and fatigued respondents. Additionally, attention was given to the readability of the instruments through both the translation procedure, in which items were altered following comments on readability, and the reduction of items, in which items with the most easily understood language were chosen. The instruments are also unlikely to cause harm and can be subjected to benchmarking, thereby fulfilling multiple criteria for being pragmatic measures.

5.2 Interpretations of findings

5.2.1. Differences between staff roles and positions

Although the effect sizes were small, analyses of group differences revealed that the nurses in our sample held a slightly more positive global attitudes towards the adoption of EBI than the psychologists did, and clinicians held less positive global attitudes towards the adoption of EBI than non-clinicians did. The results have been considered in light of the results from Green and Aarons (2011) and Asadoorian, Hearson, Satyanarayana, and Ursel (2010), which

highlight the different positions and perspectives of various stakeholders. For instance, clinicians may be more concerned with how new interventions might interfere with their clinical work with patients. Considering the relatively small differences in our sample and the fact that previous research has both found and failed to find differences between different staff roles (Aarons et al., 2010; Arumugam, MacDermid, Walton, & Grewal, 2018; Asadoorian et al., 2010), we encourage more research on this topic.

5.2.2. Provider demographics

The regression analyses included in both paper 2 and 3 indicate effects due to provider demographics. The explained variance of the regression analyses were approximately between 5 and 25% (note, not reported in paper 3), indicating that many factors other than those we have studied also contribute to the predicted outcomes. Effects of gender were found in both paper 2 and 3, with men reporting more negative attitudes towards the adoption of EBI than females and females reporting more use of standardized instruments for treatment planning than males. Paper 2 reported age differences, with younger respondents holding more positive attitudes than older respondents towards the adoption of EBI overall as well as more positive attitudes related to the second-order component of *attitudes related to work conditions and requirements*, which captured issues of organizational support, education, training, job security and imposed interventions. The last finding is in line with findings of Okamura, Hee, Jackson, and Nakamura (2018), in which younger therapists exhibited more favourable attitudes in the job security and organizational support domains. Both paper 2 and 3 also reported differences with regard to years of experience: paper 2 indicated that more years of experience predicted a higher score in the *professional concern* domain, while paper 3 reported that clinicians with more years of clinical experience reported less use of standardized instruments for treatment planning. As will be discussed in section 5.3, this

result might indicate different needs and priorities between professionals in different age groups and phases of their careers, which has implications for implementation strategies.

Respondents working at sites that systematically apply one EBI or more held more positive global attitudes and less *professional concerns*, which, in line with Powell et al. (2017), might indicate that increased experience and knowledge of EBI among professionals might influence attitudes in a positive direction. However, this finding could also suggest that professionals with positive attitudes towards EBI seek a work environment that employs and encourages the use of EBI, thereby influencing our results. Furthermore, article 2 reported that individuals working as private practitioners held more negative global attitudes, more *professional concern* and a lower score for *attitudes related to work conditions and requirements* compared to those working in public outpatient services. Respondents working in academia held more positive global attitudes and presented less concern regarding the adoption of EBI, while those working in a combined position involving both clinical work and research and education had lower scores for *attitudes related to work conditions and requirements*. Individuals who did not have leadership responsibilities showed more professional concern towards the adoption of EBI and were more influenced by attitudes related to fit and preference (i.e., the fit with the clinicians' current approach, the perceived needs of clients and positive perceptions of feedback). These findings can be interpreted in the context of the different positions and perspectives of different stakeholders (Asadoorian et al., 2010; Green & Aarons, 2011; Stadnick et al., 2017) and a greater concern regarding issues that directly interfere with one's everyday practice. Examples include non-leaders expressing more concern, as they are often the ones performing the new interventions; scepticism towards science and research findings; or different motivations to seek different work arenas (e.g., private practice, work sites with specific EBI agendas). Although our research design does not allow us to provide causal explanations for the above findings, they indicate that

providers' demographic characteristics and their inherent complexities need to be taken into account when planning an implementation initiative (see section 5.3 for a discussion of implications).

5.2.3. Organizational factors: Social and psychological factors at work

Article 2 reported on how social and psychological factors at work predicted attitudes towards the adoption of EBI. First, the experience of being more in control of decisions regarding one's own work situation predicted global attitudes and more professional concern, putting less weight on work conditions and requirements, and a greater readiness to use interventions based on fit and shared preferences with patients and colleagues. The QPS Nordic's control over decisions included questions about having control over the workload and work methods, which might indicate that respondents who scored highly in this dimension felt more autonomy and had a personal choice in how to perform their work. Second, experiencing an empowering leadership style as well as the perception of receiving collegial assistance predicted more positive global attitudes towards the adoption of EBI, a greater willingness to use interventions based on fit and shared preferences and lower professional concern. The empowering leadership subscale included the experience of being encouraged by superiors to take part in decision making, sharing ones opinions and skill development. Although leadership style was measured with other instruments, this finding can be seen in light of other studies, highlighting the role of positive leadership styles with regard to professionals' attitudes towards adopting EBI (Aarons, 2006). Finally, our results support previous research regarding workload as a barrier to adopting EBI (Aarons et al., 2012; Okamura et al., 2018). The experience of more job demands predicted *attitudes related to work conditions and requirements*, including perceived time and administrative burden of learning new interventions and the call for organizational support, training and education.

5.2.4. ROM attitudes and reported use of standardized instruments for treatment planning and evaluation.

In article 3, the reported findings showed that perceived limitations of the use of ROM as being too narrowly focused, unsuitable for patients with multiple problems and hindering the connection between the therapist and patient predicted less use of standardized instruments for treatment planning, on-going evaluation of treatment and the evaluation of effects. This relationship might be unsurprising considering the literature on therapist attitudes towards ROM as a barrier to the adoption of ROM (e.g., Lilienfeld et al., 2013). Nevertheless, this result is important from several aspects. In addition to the promising value of the limitation subscale for addressing this aspect for both research and practice purposes, identifying professionals' potential concerns (or the absence of concern) has implications for implementation initiatives (see section 5.3). In our sample, the mean score of the scale items suggests that most respondents did not score highly on perceived limitations. Future research aimed at examining whether this is a general finding or whether it varies between samples and contexts is encouraged.

Additional findings with possible implications for implementation initiatives were that the experience of more organizational support (e.g., training, on-going support and receiving educational credits) predicted more reported use of standardized instruments for on-going evaluation of treatment and that a higher score on the job security subscale predicted more use of standardized instruments for the evaluation of treatment effects. In line with studies by Sharples et al. (2017) and Overington, Fitzpatrick, Hunsley, and Drapeau (2015), our results indicate that training, on-going support and educational efforts can act as important facilitators of the implementation of ROM.

Interestingly, the fit and burden subscales predicted the use of standardized instruments in an unexpected direction. The fit subscale, which addressed the fit with ROM and the professionals clinical approach and knowledge that one's clients wished to use ROM, co-occurred with *less* use of such instruments, whereas reporting a higher score on the burden subscale, referring to concerns about paperwork, administrative burden and time demands, predicted *more* use. Although several possible explanations for these findings (e.g., a tool for structuring a complex work situation) are discussed in article 3, future research should explore whether these findings also hold in other samples.

Finally, the finding that more positive global attitudes towards the adoption of ROM predicted more use of standardized instruments for all given purposes indicates that clinicians' attitudes are important when planning the implementation of ROM.

5.3 Implications

The Norwegian regulations on management and quality improvement in the healthcare services highlights how to plan, carry out, evaluate and adjust services provided, to secure professional accountability and quality improvement in the health services (Ministry of Health and Care Services, 2016). In this picture, implementation science can be argued to have a significant role, aiming at understanding factors leading to adoption and sustainment of planned initiatives and ultimately aiming at improving the quality and effectiveness of the health services. The implications of the work described in the present thesis highlight how implementation efforts may benefit from being tailored to the different needs and values of the affected professionals, with attention to the context in which they work. In planning implementation initiatives, several factors need to be taken into account. Embedded, for instance, in the adoption context levels as outlined by Wisdom et al. (2014), our results imply the need to obtain knowledge about the providers involved (e.g., previous experience, age,

work site, attitudes) and organizational factors (e.g., leadership, organizational support). In the following section, implications for both EBI and ROM are discussed with a special emphasis on training efforts and organizational development. Realizing that training and organizational efforts are not sufficient, the last section regarding implications will focus on some of the more “philosophical” aspects concerning implications for clinical science and practice.

5.3.1 Implications for implementation strategies in real-world clinical service settings:

Training efforts and organizational support

In the literature on important implementation strategies, training issues and organizational support are increasingly recognized as essential (Connors et al., 2018; Lyon et al., 2014; McMillen, Hawley, & Proctor, 2016; Park, Tsai, Guan, & Chorpita, 2018). Our results can be interpreted as being especially necessary for the youngest professionals, but are also likely more generally applicable. For instance, the value of training and support was recently reported by Brattland et al. (2018) during the implementation of ROM in a clinical service setting. The finding that patients treated later in the implementation process benefitted more from ROM than those treated in the earlier phases of implementation was interpreted as being accounted for by sustained training and support over time.

An implication of both this thesis and the associated papers is that training and organizational support are not straightforward and might require careful planning in each circumstance. Drawing parallels to ROM, as feedback on patient progress throughout the course of treatment may benefit improvement, feedback on the implementation progress might do the same to facilitate implementation success. The use of psychometrically sound and pragmatic instruments to measure implementation factors might reveal barriers during the course of the implementation phases, thus allowing strategies to be tailored to particular needs or modifications to be made when necessary. It may also contribute to reveal what it is that

work or does not work to achieve implementation success or failure. Implementation frameworks can be helpful for structuring needs at both the individual provider level and the organizational level as well as the client and intervention levels (Damschroder et al., 2009; Wisdom et al., 2014). For instance, with regard to the amount of existing EBI as well as factors common to all EBI, implementers need to choose which EBI, intervention component or common factor is their focus and the scaling of training that is needed. This approach must take into account the problem(s) presented by the clients as well as their environments; the different needs, values and priorities of professionals; and the availability of resources. The same principles relate to the choice of which ROM solution is appropriate for a given clinical service setting and to the provision of proper organizational support to move from adoption to successful sustainment of the intervention. Factors that need to be considered include differences in the knowledge and experience of professionals before starting the implementation initiative and the fact that their attitudes towards the adoption of new interventions may vary substantially. For instance, while younger professionals might be in a period of their career with a greater focus on acquiring skills and appropriate clinical knowledge, older professionals have a greater experience base (which actually constitutes one of three elements in EBP) and might be more concerned with how an intervention interferes with their everyday practice. Additionally, developing positive leadership abilities and learning environments within an organization that make it valuable for staff to participate in important decisions as well as safe to try out new practices and seek assistance from one's colleagues, might be elements that could foster and motivate staff to be able to deliver the intended service.

Furthermore, training issues are not limited to implementation initiatives but also affect the schooling, educational settings and clinical practice of students. In this regard, Wampold (2015) highlights that the use of ROM is not limited to the documentation of

effects, but that ROM also has the potential to be used together with various skill assessments, allowing training to be targeted towards particular areas in need of growth. This implies that ROM might be more generally utilized also for therapeutic and organizational growth.

5.3.2 Implications for clinical science and practice: Attitudes and practice.

In article 2, we argued that ignoring the knowledge of and potential causes of professionals' attitudinal concerns about using EBI might be quite risky, with regard to both widening the scientist-practitioner gap and wasting invested resources in real-world practice settings, due to hampered implementation initiatives. In conjunction with this is our discussion in paper 3, where findings concerning perceived limitations of ROM and the value of organizational support is suggested to reflect the distinct needs of professionals, representing clinical utility and professional concerns on one hand, and on the other hand, more administrative and practical needs (see also Boyce, Browne, & Greenhalgh, 2014). This distinction parallels the divide of attitudinal barriers to ROM into practical and philosophical aspects (Boswell et al., 2015; Hatfield & Ogles, 2004). Why might this distinction be of importance? Well, as discussed by Boyce et al. (2014), even after the successful provision of implementation strategies such as proper training and administrative support, these professional concerns might endure, acting as potential implementation obstacles in the long run. Thus, revealing, understanding and dealing with professional limitations and concerns, or the absence thereof, is of importance when planning implementation strategies, with regard to both adoption and final sustainment of an intervention.

Importantly, efforts to describe and study attitudes towards EBI and ROM among mental health care professionals does not involve revealing who is for and who is against science and evidence. For that, the concepts are (luckily) too complex. Throughout the thesis, we have described attitudes as multidimensional and complex, with potential to vary during

one's lifetime and according to the context in which one works. The longstanding science-practice gap has been described as originating in deep-seated attitudinal differences but probably to a greater extent reflects how one views and conceptualizes "evidence" in the first place, such as which sources of knowledge one considers valid (e.g., RCTs or subjective experiences) (Lilienfeld et al., 2013). Thus, how we understand knowledge will influence the kind of research questions that we ask and what kind of research designs we will use.

Following this line of reasoning are the possibilities and limitations of different research designs that make them suitable for shedding light on certain important questions, but not on others (Oddli, 2013). For instance, throughout history, RCTs as gold standard for psychological science might have been shunned as representing a system advocating standardization, effectiveness and cost-benefit analysis, without concern for individual patients' needs. At the same time, RCTs have provided valuable insight into the "general question", which can be seen as contributing to opening doors to research questions that deal with mechanisms of change and what facilitates patients improving with therapy (Castonguay, 2013). The movement towards practice-based evidence and the use of ROM in routine mental health care might imply active collaboration between clinicians and researchers at all levels of an initiative, for instance from the choice of a topic or project one is interested in, implementation and the analysis and dissemination of results. Through a joint effort involving both respecting and acting upon what are perceived as potential limitations or concerns among professionals, the use of ROM might have potential to bridge the gap between science and practice, further potentially developing psychotherapy research in new directions and increasing the knowledge of what actually makes psychotherapy work or fail to work (Castonguay, 2013; Newnham & Page, 2010; Wampold & Imel, 2015). A main goal is enhancing patient outcomes and the quality of the mental health services provided even more. This implies a need to develop practice-near and relevant outcome measures as well as a

proper understanding and openness regarding how ROM measures are to be used (and not used) in routine clinical practice.

5.4. General methodological considerations

5.4.1 General comments on reliability and validity

In addition to discussing the reliability and validity of the developed EBPAS-36 and EBPAS-ROM (see sections 5.1.1 and 5.1.2), it is worth commenting on reliability and validity in general. For survey 2, subscales from the QPS Nordic were used to measure organizational features and work climate (see section 3.3.3 for a description of the instrument). In the reliability assessment of the present study, the α values of the present sample for the included subscales all exceeded 0.70. The implementation literature on organizational factors has noted the problem of various definitions and contents of constructs (Chaudoir et al., 2013), which might influence the generalizability of the interpretations of our study. Additionally, due to the cross-sectional research design, uncertainty regarding internal validity arises because we cannot draw conclusions on causal relationships.

5.4.2. Generalizability and representativeness

A general limitation involving both surveys is the low response rate, potentially representing a risk of bias in our results. A low response rate is a well-known problem in web-based survey studies (Van Horn, Green, & Martinussen, 2009). As an example, an online survey study of Australian clinicians' attitudes towards ROM resulted in a response rate of 20 % (Kaiser, Schmutzhart, & Laireiter, 2018). A problem regarding the generalizability of our results to other populations and, thus, a threat to external validity, can arise if there is selective non-participation. Examples might include people working in the most time-demanding settings and therefore being unable to find time to participate or complete the surveys, or

people who have the most negative attitudes choosing not to participate. For practical reasons, the surveys were sent to all members of the participating organizations because it was difficult to filter out, for instance, different work site categories or people who were retired. This situation might have contributed to the low response rate, as some of the organization members did not consider the surveys relevant to their work setting. Because a low response rate and selective non-participation represents less of a problem for regression analyses than for prevalence studies, we argue that this is less problematic in our studies (Stormark, Heiervang, Heimann, Lundervold, & Gillberg, 2008). Another factor worth mentioning is that the studies were not conducted as part of an implementation initiative, potentially both acting as a limitation as well as allowing us to study professional attitudes in general.

5.4.3. Survey research and potential bias

Our studies rely on survey data and, thus, on self-reports. This approach produces the possibility of several potential biases, such as misunderstandings (see also section 5.4.4), false reports and social correctness in respondents' answers (i.e., what they think is right in light of the research questions instead of their actual opinions). Furthermore, our studies do not include objective measures of behaviour, such as direct observations, data from administrative systems or patient case notes, again highlighting the need for future studies to be conducted in real-world settings. However, survey studies are common in this line of research, and are both practical and involve fewer resources.

5.4.4. Conceptualization and possible misinterpretation of terms being used

In all papers, attention was given to proper conceptualization of the terms used with regard to both EBI and ROM (see section 3.3.7). Nevertheless, there is a possibility that misinterpretations or different understandings or meanings of the terms used may have

affected how different people responded, possibly leading to bias in the results. When approaching the literature, both misinterpretations and different understandings can be expected. As several studies have suggested, confusion regarding the concepts of EBP and evidence-based treatments or interventions can act as substantial barriers to the adoption of EBIs (Luebbe et al., 2007; Pagoto et al., 2007; Thyer & Pignotti, 2011). Additionally, in survey 1, some of the comments in the open commentary fields indicated that some respondents had difficulties discerning these two complex concepts. With regard to ROM, Wampold (2015) discusses the various components of ROM, highlighting inherent ambiguities that may influence how various people view ROM. These components include the concept of collecting information about patient progress and providing that information to therapists, the regular administration of a scale, interpretations of simple scores or subscales, the graphical presentation of scores, and comparisons with normative data. Because confusion, misinterpretation or meaning-making may influence professionals' views of "evidence" and research findings as well as the integration of science into routine practice, an important implication is the effort to reduce these concerns through a deeper understanding and communication of what EBP, EBI and ROM truly mean. Together with the overall concern in the implementation literature, ensuring a uniform conceptualization and common language is important.

5.5 Future research

Future research should continue to explore the validity and practicality of the EBPAS-36 and EBPAS-ROM instruments, preferably in different settings, adhering to the need for psychometrically strong and pragmatic instruments in implementation science. For instance, using the instruments in real-world implementation initiatives might provide more knowledge regarding the actual predictive value of the instruments and allow us to study the impact of

various factors on the success or failure of implementation. For new instrument development initiatives, researchers might consider using our adaption and reduction procedure as a model, allowing “new” instruments to be built upon the basis of already established instruments. Here, instrument initiatives such as the SIRC project (Lewis et al., 2018; Lewis et al., 2015) might act as motivation for choosing a proper instrument for a specific purpose.

Ideally, continued research should be conducted as part of real world implementation initiatives, making it possible to explore attitude dimensions in relation to actual behaviours, behavioural changes, the effect of implementation strategies or other parameters of interest. For instance, future research should explore how various training efforts best can facilitate the adoption of new interventions and how organizations can best lay the groundwork for learning environments fostering front-line staff who are capable, motivated and experience value in delivering the intended service.

Furthermore, the complexity of mechanisms and factors involved with regard to attitudes towards the adoption of both EBI and ROM urges future research to continue to address these issues employing a variety of research methodologies. While using a variety of research methodologies might substantially expand our understanding of the different mechanisms in psychotherapy per se, it might also reveal a deeper and more nuanced understanding of the complexities of implementation challenges. Future work should struggle to adhere to established implementation frameworks, in an effort to secure a uniform definition and understanding of concepts of interest.

6. Concluding remarks

Psychotherapy and psychotherapy research are now important and established parts of the mental health care system and have received considerable attention and documentation, both in the media and in high-quality journals (Lambert, 2013). As an applied clinical science, the

major goal of psychotherapy research is to protect and promote patient welfare by identifying principles and procedures that enhance patient outcomes (Lambert, 2013). With the extensive rise in psychotherapy research since the beginning of modern clinical psychology, it is notable that the implementation of evidence-based treatments and interventions in ordinary clinical practice still lags behind their discovery. The debates surrounding “evidence” and “practice” will surely endure, and the constructiveness of these debates might benefit from reflection on and understanding of the historical roots and developments of these issues. The movement towards practice-based evidence and the use of ROM, as well as the field of implementation science, which strive for a better integration of evidence into practice, might lead to further advances in both psychotherapy and psychotherapy research, resting upon active collaboration between science and practice and aiming for better patient outcomes. During the years since this Ph.D. was planned, there have been notable developments in the field of implementation science (Brownson, Colditz, & Proctor, 2018). The work in the current thesis contributes to this growing knowledge base with regard to factors that are important for the implementation of EBI in routine mental health care settings and the more specific practice of ROM, an initiative with the potential to bridge the gap between research and clinical practice.

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Paper I

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RESEARCH

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The Evidence-based Practice Attitude Scale-36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples



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Abstract

Background: Short and valid instruments for measuring factors facilitating or hindering implementation efforts are called for. This article describes (1) the adaptation of a shorter version of the Evidence-based Practice Attitude Scale (EBPAS-50 items), and (2) the psychometric properties of the shortened version in both US and Norwegian data.

Methods: The US participants were mental health service providers ($N = 418$) recruited from clinics providing mental health services in San Diego County, California. The Norwegian participants were psychologists, psychiatric nurses, and psychology students ($N = 838$) recruited from the Norwegian Psychological Association and the Norwegian Nurses Organization. A confirmatory factor analysis (CFA) approach was used.

Results: The reduction resulted in 36 items named EBPAS-36, and the original 12 factor model was maintained. The EBPAS-36 had acceptable model fit, as indicated by a low degree of misspecification errors in both the US (RMSEA = .045 (CI_{90%} .040–.049); SRMR = .05) and the Norwegian data (RMSEA = .052 (CI_{90%} .047–.056, SRMR = .07). Incremental model fit was fair in the US (CFI = .93, TLI = .91) and in the Norwegian samples (CFI = .91, TLI = .89). The internal consistency (Cronbach's α) in the US and the Norwegian samples were good for the total EBPAS-36 score (.79 and .86, respectively) and were ranged from adequate to excellent for the subscales (US .60–.91 and Norway .61–.92).

Conclusions: The EBPAS-36 has adequate psychometric properties both in US and Norwegian samples, hence indicating cross-cultural validity. It is a brief, pragmatic, and more user-friendly instrument than the EBPAS-50, yet maintains a broad scope by retaining the original 12 measurement domains.

Keywords: Evidence-based practice, Evidence-based practice in psychology, Evidence-based treatments, Interventions, Implementation, Attitudes, Therapists, Mental health

Background

Most evidence-based interventions never become implemented in real-world practice despite a substantial focus on implementation of evidence-based psychological interventions [1, 2]. A remedy is to increase knowledge about what makes implementation successful, and hence

development and validation of pragmatic, yet psychometrically strong instruments, becomes crucial [3]. Use of instruments that cover a broad area of factors that facilitate or hinder implementation may provide valuable knowledge to help tailor implementation strategies in order to overcome implementation obstacles. In contrast, the use of poor quality instruments might slow advances of the implementation knowledge base [3, 4], which ultimately may negatively influence the quality of services provided.

Several concerns regarding instrumentation may impede advances in implementation science. This includes

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a growing number of frameworks, theories or models, an increasing diversity in the operationalization of constructs, improper psychometric testing of instruments, and scant practicality and pragmatism of the available instruments [3–9]. The Society for Implementation Research Collaboration (SIRC) Instrument Review Project [3] recently identified over 420 instruments covering 48 different implementation constructs: “factors inside domains (characteristics of the intervention, characteristics of individuals involved in the implementation, outer settings, inner setting, process, implementation outcomes and client outcomes) that may predict, moderate, or mediate evidence-based intervention dissemination and implementation, as well as implementation outcomes” (p. 3). The preliminary results from the SIRC project suggest that few instruments are psychometrically strong or have been developed through a sufficiently systematic approach [3].

Moreover, the implementation process encompasses different phases involving complex multilevel challenges, such as the exploration, the preparation, the implementation, and the sustainment phase characterized by the Exploration Preparation Implementation and Sustainment (EPIS) implementation framework [10]. In all phases, specific characteristics of the clinical interventions, the patients, the health care professionals, the organizations, and even the policies of health authorities may involve barriers or facilitators for a successful implementation [5, 11–17]. Regarding the health care professionals, one factor that affects the process and outcomes of implementation is service providers’ attitudes to evidence-based practice (EBP) [11, 13, 18, 19]. This is important as it may influence the initial process of deciding whether to launch new practices, the actual implementation process, and how to sustain of interventions efforts within service settings [11, 13].

The Evidence-based Practice Attitude Scale (EBPAS) was developed from theories of dissemination and implementation in mental health, as well as consultations with mental health service providers and researchers [11, 13]. The original EBPAS consisted of 15 items (EBPAS-15) covering four attitude domains: (1) the intuitive *appeal* of EBP, (2) the likelihood of adopting EBP given *requirements* to do so, (3) *Openness* to new practices, and (4) the perceived *divergence* of one’s usual practice with research-based/academically developed interventions. The EBPAS-15 has good psychometric properties [11, 20–23] and is highlighted as psychometrically strong by the SIRC Instrument Review Project [3]. The scores from the EBPAS-15 are associated with relevant provider demographic characteristics, organizational characteristics, leadership [11, 12, 20, 23], as well as provider adoption and use of EBP [24]. For instance, higher educational status is associated with more favorable attitudes [11]. Also, higher levels of positive leadership styles

[20] and more constructive organizational culture [23] is associated with more positive provider attitudes, while poorer organizational climate is associated with greater perceived divergence between ones usual practice and EBPs [23]. More recent work has expanded the purview of attitudes and resulted in the development of eight additional domains dispersed across 35 new items (EBPAS-50) [13]: (5) the *limitations* of EBPs, (6) the EBPs *fit* with values and needs of client and clinician, (7) the negative perceptions of *monitoring*, (8) the *balance* between perceptions of clinical skills and science as important in service provision, (9) the time and administrative *burden* with learning EBPs, (10) *job security* related to expertise in EBP, (11) perceived *organizational support*, and (12) positive perceptions of receiving *feedback*.

The expansion from 15 to 50 items covers a wider domain of attitude concepts. However, cross-cultural translations and validation studies are lacking. As part of a Norwegian survey among psychologists and nurses examining challenges with implementation of evidence-based interventions and systems for improving the quality of mental health service settings, a Norwegian translation of the EBPAS-50 was included. Given the need for briefer, yet reliable and valid instruments [3–6], we examined ways of shortening the EBPAS-50.

Aims of the present study

The present study aimed to shorten the original EBPAS-50 but maintain the original 12 subscales. Furthermore, we examined the factor structure, and the reliability of its subscale scores across two cultures contexts (US and Norway). We expected that the shortened version would have higher user acceptability, retain the original factors structure, show satisfactory reliability, and display indices of good convergent and discriminant validity.

Methods

US: procedure

The study was approved by the appropriate institutional review boards prior to recruitment, and informed consent was obtained prior to administering surveys. The research team recruited participants from mental health clinics providing mental health services for children, adolescents, and families in San Diego County, California, United States. Of the initial 99 county run and contracted programs identified, 72 programs were eligible because they provided either outpatient or day treatment mental health services. Twenty-six of the 99 clinics were identified as ineligible because they were residential treatment facilities, lacked the appropriate organizational structure (i.e., no supervisor or program manager for the clinic), or due to inability to make contact with the program. Of the 72 eligible programs, seven programs refused (90.3% response rate). The total

number of eligible participants from the 65 participating programs was 440, of which 435 agreed to participate (98.9% response rate). Fifteen individuals were administrative assistants and were not asked to respond to the EBPAS portion of the survey, and two individuals were excluded due to missing data resulting in a total sample size of 418.

Norway: procedure

Participants were invited by emails sent out by the Norwegian Psychological Association to half of their members (Norwegian sample 1, $N = 3598$) and by the Norwegian Nurses Organization, professional group for nurses in mental health and substance abuse, to all of their members (Norwegian sample 2, $N = 1436$). The survey was also announced on the Internet sites of these two organizations. The invitation email contained a web link providing access to the survey, as well as information about the study provided by the research group. All respondents provided informed consent according to recommendations of the Norwegian data protection authority for the project. Completion of the survey was accepted as consent to participate in the project. The online SurveyMonkey software was used to collect data during May–October 2014. One and two reminders were sent to samples 2 and 1, respectively. For incentives, all participants had the opportunity to participate in random drawings for one iPad mini, and two psychology and nursing handbooks.

A total of 856 psychologists and psychology students (24.0% response rate for sample (1) and 191 nurses (13.3% response rate for sample (2) completed the survey ($N = 1047$). Subjects not completing any of the EBPAS-50 items were excluded, as well as those with missing data for whole subscales, >1 item on a 3-item scale or >2 items on a 4-item scale ($N = 209$). Thus, the final Norwegian sample included data from 838 respondents.

Norwegian translation procedure

The Norwegian translation of the EBPAS-50 was conducted by the first author (MR) in 2013, and back-translated by a professional. The procedure followed recommended guidelines for cross-cultural translation, adaptation, and validation of instruments [25]. Any deviations between the original and the back-translated version were resolved by a consensus discussion between the first (MR) and the last author (IS). The final Norwegian version was reviewed, revised, and approved through an iterative process that resulted in consensus between MR and the original EBPAS-50 author (GAA). The measure was then given to a sample of clinicians, psychology and PhD students, and comments related to readability were used to finalize the translation.

Some translational adaptations with regard to the definition of the concept of EBP were made for the written instructions of the instruments. In the original version, the instructions specified that “evidence-based practice” refers to any intervention that is supported by empirical research. The Norwegian instructions were limited to evidence-based interventions (i.e., therapies, methods). This was consistent with the American Psychological Association and Norwegian Psychological Associations’ definitions of evidence-based psychological practice. It thus makes an important distinction between the more comprehensive concept of *evidence-based practice*, referring to the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences, and *evidence-based treatments and interventions*, referring to specific research-supported interventions [26, 27].

Measures/assessment

US: demographic characteristics

Participants’ gender, age, ethnicity/race, level of education, primary discipline, years worked in mental health, and years worked in current agency were collected.

Norway: demographic characteristics

Participants’ gender, age (response categories < 30 years, 31–40 years, 41–50 years, 51–60 years, and > 60 years), level of education, profession, and years worked in substance abuse- and/or mental health service were collected.

The Evidence-based Practice Attitude Scale (EBPAS-50)

EBPAS-50 is a 50-item instrument developed to assess mental health and social service providers’ attitudes toward adopting EBP [13]. The 50 EBPAS-items cover 12 subscales: appeal (four items), requirements (three items), openness (four items), divergence (four items), limitations (seven items), fit (seven items), monitoring (four items), balance (four items), burden (four items), job security (three items), organizational support (three items), and feedback (three items). The 12 subdomains sum up in a higher order total scale score representing respondent’s global attitudes toward evidence-based practice. The items are formulated as statements, and responses are given on a 5-point Likert scale ranging from 0-“not at all” to 4-“to a very great extent”. In order to assess different perspectives and to reduce response biases, 23 items belonging to five subscales (divergence, limitations, monitoring, balance, and burden) are negatively framed. According to the EBPAS-50 scoring instructions, for the total score these items are reversed scored, and the mean subscale scores recomputed, before a mean score for the total EBPAS-50 item score is computed. A higher total score indicate a more positive attitude towards adoption of evidence-based practice.

Open-comment fields

For the Norwegian survey, respondents also had the opportunity to convey their opinions and to supply supplementary information in open-comment fields to provide feedback regarding content and the measure overall.

Statistical analyses

Confirmatory factor analyses (CFA) for item reduction evaluations were conducted in Mplus v7.2. The model specification was based on the 12 subscales of the expanded EBPAS-50. The Norwegian sample was split using the first sample to identify a shorter version ($N = 413$), and the second sample to validate the factor structure ($N = 425$). For the US CFAs, the same sample was used for both the reduction and the validation process. The parameters were estimated with the full information maximum likelihood procedure (FIML), and robust standard errors (MLR) were requested in order to accommodate for non-normal item distributions. The MLR procedure is efficient and works comparably well as weighted least squares procedures for ordinal data with five or more ordinal categories [28]. The following model fit indices were used: χ^2 , root mean square error of approximation (RMSEA), standardized root mean error (SRMR), and comparative fit indices (CFI) [29]. Following Hu and Bentler's cutoff recommendations [30], RMSEA values close to .06, SRMR close to .08, and CFI close to 0.95 indicate acceptable model fit. The US sample controlled for the nested data structure of providers within program. Given the aim to reduce the length of the EBPAS-50 while retaining the original 12 factors, a minimum of three items per factor were retained. Subscales containing four or more items were thus shortened based on a combination of the following criteria: (1) retain items with the highest factor loadings; (2) evaluations of modification indices; (3) items being conceptually similar or adding unique information. The reduction process was done separately for the US and the Norwegian samples, and the resulting versions were compared and discussed before reaching a final consensus version. It is important to note that our primary goal was to develop a brief and a pragmatic measure that represented the original constructs identified in the EBPAS-50 subscales. The removal procedure put weight on keeping items that preserved the content and meaning of the subscales, in addition to information about factor loadings and scale reliability.

Calculations of test parameters

The validity of the questionnaire was measured by acceptability, the percentage of items left unanswered, and the interpretability of the components. SPSS version 22 was used for basic statistical analyses and estimation of internal consistency (Cronbach's α).

Results

Samples

For the US sample, the average age of the 418 participants was 36.3 ($SD = 10.6$; range = 21–66), and the majority of respondents were female (79.8%). Participants worked in the mental health services field for a range of 0–43 years, in child and/or adolescent mental health services for a range of 0–42.7 years, and in their present agency for a range of 0–29.1 years participants' areas of primary discipline included: 2.5% child development, 0.2% drug/alcohol counseling, 1.5% human relations, 48% marriage and family therapy, 1% nursing, 0.2% probation, 0.5% psychiatry, 15.3% psychology, 24.6% social work, and 6.2% other discipline. Participant demographic characteristics for the US sample are provided in Table 1.

For the Norwegian sample, the majority of the sample ($N = 838$) were in the age category 31–50 years, one third were older than 50, and a sixth younger than 30.

Table 1 Demographic characteristics of the US sample

Characteristics	Values
Gender	
Female	79.8%
Male	20.2%
Race/ethnicity	
Caucasian	54%
African American	6.7%
Hispanic	23%
Asian American	4.2%
Native American	0.2%
Other	11.9%
Highest education	
Ph.D./M.D.	6.9%
Master's degree	58.6%
Some graduate work	5.7%
Bachelor's degree	12.3%
Some college	2.2%
Associate's degree	1.7%
High school diploma	0.5%
Less than high school diploma	0.2%
Age	
Mean (SD)	36.3 (10.6)
Tenure in mental health (years)	
Mean (SD)	8.5 (7.7)
Tenure in child/adolescent mental health (years)	
Mean (SD)	7.5 (7.6)
Tenure with agency (years)	
Mean (SD)	3.1 (4.2)

An estimated mean age for the Norwegian sample was thus 43.4 years, based on the midpoint of each age category and weighted by the numbers falling in each category (for those in the category under 30, a midpoint of 27 years was chosen, since psychologists and nurses graduate at minimum age 24–25). The majority of the participants were female (68.6%). Clinical psychologists reported working in the substance abuse and mental health service field for a range of 0–45 years, while nurses reported a range of 2–42 years of experience. Sixty-two (7.4%) participants were psychology students following a six-year university education and training program in clinical psychology leading to the postgraduate cand. psychol. degree, 655 were authorized clinical psychologists with an accomplished postgraduate cand. psychol. degree (78.1%), and 121 were authorized nurses with an accomplished Bachelor's degree in nursing (14.5%). Participants came from a diverse setting of mental health services, with the largest group representing outpatient units for adults (18.0%). Participant demographic characteristics for the Norwegian sample are presented in Table 2.

Table 2 Demographic characteristics of the Norwegian sample ($N = 838$)

Characteristics	Values
Gender ^a	
Female	68.6%
Male	31.4%
Highest education clinical psychologists ^b	
Both Ph.D and clinical specialist degree	4.3%
Ph.D	4.0%
Clinical specialist degree	47.2%
Other continued education	3.4%
Highest education nurses ^c	
Ph.D	1.7%
Master's degree	14.9%
Other continued education	80.2%
Age ^d	
< 30 years	14.9%
31–40 years	31.6%
41–50 years	23.5%
51–60 years	19.2%
> 60 years	10.9%
Tenure substance abuse and mental health (years)	
Clinical psychologists, mean (SD)	9.98 (9.5)
Nurses, mean (SD)	18.04 (9.2)

^a20 respondents did not report their gender

^bAfter initial cand.psychol degree

^cAfter initial Bachelor's degree

^d Three respondents did not report their age

Acceptability

Among the 418 respondents in the US sample 319 had complete data (76%), but of those with missing data, 49 of the 101 (49%) had missing information on only one item, 24 had 2 to 5 items missing (24%), and the remaining 28 (27%) had more than five items missing. The reporting of unanswered items in the Norwegian sample is based on cases that completed the EBPAS-50 items ($N = 884$). More than three quarters (76.81%) completed all 50 items of the EBPAS-50. No single item was left open by more than 3.3%. Item 17 was omitted most frequently. Moreover, participants provided comments recommending shortening, such as: "I think there are too many questions of quite similar nature, which makes it boring and difficult to answer", or "Too many questions with same content made it tempting to quit without completing".

Item reduction

The reduction process was done separately for the US and Norwegian sample. Following the reduction criteria as described in the Statistics section, one item in each of the following subscales having four items were removed: appeal, openness, divergence, monitoring, balance, and burden. The final 36-item version was agreed on following a consensus discussion and is presented in Table 3 for the US and Norwegian samples, respectively. Item 9 from the appeal subscale ("intuitively appealing") and item 8 from the openness subscale ("Would try therapy/interventions different than usual") were removed due to content overlap with other items in these scales. Item 34 in the balance subscale ("Satisfied with my skills") was removed as we considered the content validity of this item as poorer compared to the other three items. Item 3 on the divergence subscale had a low factor loading and was removed. A discrepancy between the US and the Norwegian sample with regard to item 30 ("I prefer to work on my own without oversight") and item 33 ("I do not need to be monitored") on the monitoring subscale was solved following a consensus discussion. Consequently, item 33 was removed as it was framed too generally and not specifically referring to work or services. A similar discrepancy occurred with regard to two items on the burden subscale (item 38 "Don't have time to learn anything new" and item 41 "EBP will cause too much paperwork"). A consensus was reached for excluding item 41, since, unlike the items retained, the referent was not specific to the individual (i.e., EBP will cause too much paperwork *for me*). Also, four items in each of the two subscales with seven items were excluded: limitations and fit. In determining which items to exclude from the limitations subscale, three items were removed on the basis of having the lowest factor loadings. However, item 27 "Families with multiple problems" was

Table 3 EBPAS-50 and EBPAS-36 items standardized factor loadings, means, and standard deviations in US and Norwegian samples

Item no. ^a	Subscales and items	US sample				Norwegian sample			
		EBPAS-50 factor loadings	EBPAS-36 factor loadings	Mean	SD	EBPAS-50 factor loadings	EBPAS-36 factor loadings	Mean	SD
Scale 1: requirements									
12	Agency required	0.99	0.97	2.65	1.03	0.99	1.00	1.90	1.20
11	Supervisor required	0.88	0.89	2.59	1.05	0.91	0.93	1.83	1.21
13	State required	0.78	0.77	2.72	1.11	0.73	0.79	2.25	1.22
Scale 2: appeal									
15	Enough training	0.55	0.83	3.13	0.87	0.28	0.68	3.22	0.79
14	Colleagues happy with therapy	0.56	0.71	2.74	0.94	0.34	0.68	2.62	0.89
10	Makes sense	0.89	0.61	3.15	0.81	0.80	0.53	3.04	0.88
9	<i>Inuitively appealing</i>	0.83	–	2.91	0.89	0.75	–	2.69	1.04
Scale 3: openness									
4	Will try therapy/interventions developed by researchers	0.81	0.81	2.79	0.88	0.75	0.68	2.92	0.96
2	Will follow a treatment manual	0.61	0.78	2.64	1.02	0.84	0.86	2.78	1.10
1	Like to use new therapy/interventions	0.62	0.70	2.86	0.91	0.60	0.53	2.80	0.95
8	<i>Would try therapy/interventions different than usual</i>	0.66	–	2.50	0.97	0.61	–	2.29	1.09
Scale 4: divergence ^b									
7	Would not use manualized therapy/interventions	0.76	0.67	0.82	0.93	0.66	0.76	0.70	1.07
5	Research-based treatments/interventions not useful	0.65	0.59	0.70	0.93	0.55	0.61	0.37	0.72
6	Clinical experience more important	0.42	0.47	2.22	1.00	0.68	0.66	1.76	1.18
3	<i>Know better than researchers how to care for client</i>	0.34	–	1.66	1.02	0.56	–	1.18	1.05
Scale 5: limitations ^b									
28	Individualized treatment	0.90	0.92	1.35	1.13	0.71	0.80	1.21	1.18
29	Too narrowly focused	0.79	0.89	1.42	1.11	0.77	0.89	1.08	1.05
26	Clients with multiple problems	0.89	0.79	1.15	1.06	0.89	0.74	0.89	1.09
23	<i>Truly connecting with your clients</i>	0.65	–	1.29	1.08	0.74	–	0.47	0.83
24	<i>Develop a strong working alliance</i>	0.64	–	1.17	1.03	0.75	–	0.49	0.81
25	<i>Too simplistic</i>	0.69	–	1.35	1.11	0.71	–	1.02	1.07
27	<i>Families with multiple problems</i>	0.91	–	1.29	1.15	0.88	–	0.82	0.99
Scale 6: fit									
20	Had a say in how I would use the EBP	0.80	0.79	2.89	0.91	0.58	0.67	2.96	1.01
18	Right for your clients	0.78	0.69	3.07	0.92	0.34	0.54	3.42	0.73
21	Fit with your clinical approach	0.65	0.73	2.99	0.94	0.90	0.62	3.12	0.96
16	<i>Clients wanted it</i>	0.72	–	2.84	1.02	0.24	–	2.88	0.97
17	<i>Knew more about how your clients liked it</i>	0.65	–	3.02	0.93	0.31	–	2.55	1.04
19	<i>Had a say in which EBP</i>	0.81	–	2.83	0.98	0.49	–	2.96	0.95
22	<i>Fit with your treatment philosophy</i>	0.58	–	2.78	1.00	0.88	–	3.14	0.98
Scale 7: monitoring ^b									
31	Looking over my shoulder	0.78	0.88	1.43	1.26	0.73	0.83	0.92	1.22
32	Work does not need to be monitored	0.90	0.85	1.32	1.22	0.87	0.75	0.83	1.13
30	Prefer to work without oversight	0.72	0.71	1.41	1.23	0.69	0.83	0.77	1.10

Table 3 EBPAS-50 and EBPAS-36 items standardized factor loadings, means, and standard deviations in US and Norwegian samples (Continued)

33	<i>I do not need to be monitored</i>	0.71	–	1.24	1.26	0.88	–	0.99	1.18
	Scale 8: balance ^b								
35	Positive outcome is an art	0.60	0.73	1.35	1.20	0.65	0.60	0.84	0.99
36	Therapy is an art and a science	0.73	0.59	2.19	1.37	0.55	0.62	2.20	1.31
37	Overall competence is more important	0.56	0.76	1.23	1.20	0.67	0.61	2.07	1.15
34	<i>Satisfied with my skills</i>	0.77	–	1.60	1.35	0.19	–	2.09	1.03
	Scale 9: burden ^b								
39	Can't meet other obligations	0.72	0.81	0.95	1.10	0.60	0.70	1.26	1.14
40	How to fit evidence-based practice in	0.71	0.67	1.24	1.13	0.83	0.61	0.85	1.03
38	Don't have time to learn anything new	0.51	0.57	0.65	0.96	0.60	0.76	0.77	1.04
41	<i>Cause too much paperwork</i>	0.63	–	1.22	1.04	0.54	–	0.83	0.99
	Scale 10: job security								
43	Help me get a new job	0.89	0.98	1.94	1.25	0.99	0.95	1.47	1.30
42	Help me keep my job	0.81	0.80	1.69	1.32	0.62	0.60	0.83	1.16
44	Make it easier to find work	0.61	0.61	1.75	1.30	0.89	0.91	1.48	1.27
	Scale 11: organizational support								
46	Training provided	0.81	0.86	3.12	0.87	0.92	0.92	2.69	1.19
47	Ongoing support provided	0.68	0.82	3.24	0.80	0.87	0.87	2.44	1.21
45	Continuing education credits provided	0.75	0.74	2.89	1.04	0.67	0.61	1.75	1.35
	Scale 12: feedback								
49	Feedback helps me to be better	0.74	0.83	3.23	0.82	0.93	0.96	3.56	0.81
50	Supervision helps me to be better	0.68	0.78	3.27	0.83	0.63	0.72	3.58	0.81
48	Enjoy feedback on performance	0.62	0.69	3.12	0.88	0.82	0.84	3.38	0.86

All factor loadings are standardized. Italicized items are items removed from the EBPAS-36

^aItem number from original EBPAS-50

^bReversed scale

excluded despite a high factor loading due to content similarity with item 26 “Clients with multiple problems”. The latter is more universal and was thus retained. There was an additional discrepancy between the US and the Norwegian samples for two items from the limitations subscale (item 24 “Evidence-based practice makes it harder to develop a strong working alliance” and item 28 “Evidence-based practice is not individualized treatment”). Item 28 was retained as it matches the underlying construct of the scale better. For the fit subscale, the three lowest loading items were removed. An additional item was removed (item 19 “Had a say in which evidence-based practice”) as many therapists have less influence on which specific evidence-based practice to adopt rather than how an evidence-based practice will be used. In addition, item 22 “Fit with your treatment philosophy” was excluded despite a high factor loading in the Norwegian sample due to content overlap with item 21 “Fit with your clinical approach”. The English and Norwegian instruments, including scoring instructions, can be found in Additional files 1, 2, 3, and 4.

Subscale score correlations

The correlation coefficients (Pearson r) between the 12 EBPAS-36 subscales are presented in Table 4 separately for the Norwegian and US samples. Norwegian sample: the highest correlations were between the limitations and the divergence subscales ($r = .56$), the job Security and the organizational support subscales ($r = .53$), the openness and the divergence subscales ($r = -.49$), the appeal and the fit subscales ($r = .41$), the organizational support and the openness subscales ($r = .40$), the divergence and the balance subscales ($r = .38$), and the limitations and openness subscales ($r = -.37$), all in the expected directions. There were some similarities with the Norwegian sample correlations that emerged in the US sample, specifically between organizational support and openness ($r = .40$). Though the highest correlation found was between appeal and organizational support ($r = .57$).

Confirmatory factor analyses

In the US sample, after adjusting for the nested data structure (i.e., providers within programs), the absolute

Table 4 EBPAS-36 scale factor intercorrelations for US and Norwegian samples

Subscales	1	2	3	4	5	6	7	8	9	10	11	12
1. Requirements	–	.41**	.25**	–.14**	–.17**	.16**	–.10*	–.08	–.16**	.18**	.34**	.17**
2. Appeal	.36**	–	.38**	–.18**	–.06	.38**	–.12*	.00	.03	.21**	.57**	.35**
3. Openness	.25**	.31**	–	–.14**	–.09	.31**	–.10	–.02	–.02	.32**	.40**	.31**
4. Divergence	–.33**	–.14**	–.49**	–	.31**	–.03	.30**	.27**	.22**	–.07	–.09	–.07
5. Limitations	–.20**	.04	–.37**	.56**	–	.00	.33**	.29**	.34**	–.11*	–.10*	–.08
6. Fit	.06	.41**	.15**	.06	.06	–	.07	.18**	.11**	.27**	.34**	.29**
7. Monitoring	–.18**	–.03	–.23**	.36**	.32**	.04	–	.28**	.27**	–.05	–.07	–.26**
8. Balance	–.18**	.11**	–.13**	.38**	.32**	.22**	.30**	–	.17**	–.06	–.09	–.07
9. Burden	.02	.12**	–.10**	.15**	.22**	.00	.16**	.13**	–	.02	.09	–.11*
10. Job security	.22**	.12**	.29**	–.24**	–.13**	.06	–.10**	–.02	.02	–	.34**	.15**
11. Organizational support	.28**	.30**	.40**	–.28**	–.15**	.17**	–.15**	–.01	.10**	.53**	–	.31**
12. Feedback	.13**	.24**	.30**	–.10**	–.11**	.22**	–.23**	.09*	.01	.18**	.37**	–

The coefficients for the US sample (*N* = 418) are in the upper diagonal, and for the Norwegian sample (*N* = 838) in the lower diagonal. * indicates significance at the *p* < .05 level, ** indicates significance at the *p* < .001 level

fit was significant ($\chi^2 = 968.85, p < .001$); however, model fit was adequate in terms of low misspecification (RMSEA = .045, CI 90% [.040, .049]; SRMR = .05), and fair with regard to incremental fit (CFI = .93, TLI = .91). The standardized factor loadings ranged from .48–.98 (all *p*'s < .001). In the Norwegian sample, the absolute fit again was significant fit ($\chi^2 = 1125.04, p < .001$), but adequate in terms of low misspecification (RMSEA = .052, CI 90% [.047, .056]; SRMR = .07), and fair in terms of incremental fit (CFI = .91, TLI = .89). The standardized factor loadings ranged from .52 to 1.00 (all *p*'s < .001, except for item 18 with *p* = .003).

Internal consistency

The internal consistency of the US and Norwegian EBPAS-36, as well as the US EBPAS-50 [11, 13], is presented in Table 5. The US EBPAS-36 total scale Cronbach's α was .80, with subscale α that ranged between .60 and .91. The divergence subscale had the lowest α (.60), which could not be improved by removing the lowest item-total correlation, and hence could be interpreted as questionable [31]. The remaining subscales had Cronbach's α above .70, indicating acceptable to excellent levels of internal consistency. The Norwegian EBPAS-36 total scale had Cronbach's α .86, and subscales α ranging between .61 and .92. The Appeal, Fit, Balance and Divergence subscales had the lowest alphas (.61, .62, .64 and .68, respectively) and did not improve above >.70 following removal of items with low item-total correlations, which was less satisfactory. The remaining subscales α were above >.70. Compared to the Cronbach's α in the US EBPAS-50, both the US and Norwegian EBPAS-36 had lower α values, as expected for shorter scales, as well as implementation constructs of a broad nature.

Discussion

There is a profound need for shorter and pragmatic instruments that at the same time cover a wide spectrum of measurement constructs in implementation research. This article describes the shortening of the EBPAS-50 from 50 to 36 items based on data collected in the US and in Norway. The revised instrument, named EBBAS-36, measures 12 dimensions of provider's attitudes to adopt new practices in mental health care service settings, similarly as the original EBPAS-50 does. Data from both cultures indicated adequate psychometric

Table 5 Internal consistency, Cronbach's α , for US and Norwegian samples, and original version of EBPAS-50

Domain	Cronbach's α		
	US EBPAS-36	Norwegian EBPAS-36	Original version EBPAS-50 ^a
Requirements	.91	.92	.90
Appeal	.75	.61	.80
Openness	.81	.76	.78
Divergence	.60	.68	.59
Limitations	.90	.85	.92
Fit	.77	.62	.88
Monitoring	.85	.84	.87
Balance	.74	.64	.79
Burden	.76	.74	.77
Job security	.82	.86	.82
Organizational support	.84	.84	.85
Feedback	.80	.85	.82
Total scale	.79	.86	

^aReported by [11] and [13]; discrepancies between Cronbach's alphas from the original EBPAS-50 and US EBPAS-36 on those subscales where no items were removed are due to the alphas in the original EBPAS-50 being conducted on an data set in which missing values on items were imputed

properties of the EBPAS-36, hence being cross-culturally valid. The shortened version is not compromised by narrowing of the measurement domain as it retains the original 12 factor structure. The internal consistency of most subscales was good to high, and on par with the EBPAS-50. Some subscales had slightly lower internal consistencies in the US and the Norwegian versions: these were the appeal, the fit, and the balance subscales. Lower internal consistency is in general expected if reducing the number of items. Given that the EBPAS-36 contains only three items per factor, the lowered internal consistency may be considered as adequate, especially if compensated for by increasing the sample size in research employing these short versions. Another factor in the results may be the complexity of the measured concepts, as more heterogeneous constructs also can attenuate alpha where there are lower item-total correlations. Since attitudes towards implementation of EBP may be considered as relatively broad in scope, we consider the slightly reduced reliability to be well compensated by the broader validity of retaining the original 12 dimensions and the practicality of a brief measure that can be used more efficiently for research, organizational development, and provider development. Furthermore, several comments to the 50-item version indicated that responders were annoyed or fatigued by having to answer several seemingly identical items. Shortening the instrument is rather more likely to strengthen the validity of the scale due to fewer response biases related to irritated or fatigued respondents, which in the test literature should decrease the phenomenon of “satisficing” [32].

The literature has suggested multiple criteria for “pragmatic” measures including being important to stakeholders; having low burden; being sensitive to change; being broadly applicable; can be used for benchmarking; has norms; is unlikely to cause harm; is psychometrically strong; and is related to theory or model [8, 9]. This revision of the EBPAS-50 to a more brief and focused measure fits most of these criteria when considered in the context of studies utilizing the EBPAS and EBPAS-50, from which the EBPAS-36 was adapted. First, the EBPAS and EBPAS-50 may be deemed to be important to stakeholders by virtue of the wide use of the measures for research, service improvement, and practice [33]. Second, burden for the measure is low for respondents and the measure can be completed in just a few minutes. Third, the EBPAS and/or EBPAS-50 have been used in a variety of settings including health/medicine [34], mental health [35], substance abuse [36], education [37], social care [38], and across countries and cultures [34, 39, 40]. Fourth, norms have been established for behavioral health settings in the United States [21], and thus can be used for benchmarking in this setting, and

as the measures are utilized more broadly, evidence and normative data will become available to aid in interpretation and in understanding of both mean scores and variability in responses across countries, cultures, and various health settings. Fifth, the measure is very unlikely to cause harm. Sixth, the measure is psychometrically strong [21]. And seventh, the measure is clearly related to theory including theories of links between attitudes and behaviors [41] and as identified in multiple implementation frameworks [10, 14, 42]. While further testing of the EBPAS-36 is clearly warranted, the present study conducted across cultures, languages, and using rigorous approaches to factor structures, reliability, and validity—along with consideration of previous work—supports this new measure as both brief and having very high potential for being pragmatic.

Some limitations of this study should be mentioned. One concerns the low response rate for the Norwegian sample. Some of the Norwegian respondents provided written comments to the survey related to the response scale. The Norwegian translation used the same anchor points as the original version: 0-not at all, 1-to a slight extent, 2-to a moderate extent, 3-to a great extent and 4-to a very great extent. During piloting of the translation, a different response scale was examined, which led to response problems related to two of the items containing negations. In order to avoid changing both the phrasing of the items and the scaling, the original response scale was used. Another concern may be the introductory cross-cultural definition differences that were used to describe the basis for evidence. Normally, comparability across cultures is the rule, which we bypassed for good reasons. The English version describes “evidence-based practice” as referring to any interventions that is supported by empirical research. However, the Norwegian version limited the evidence-based definitions to the methods used (i.e., therapies, interventions). This was an attempt to distinguish the more comprehensive concept of *evidence-based practice* (referring to the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences) from the concept of *evidence-based treatment*, which refers to special treatments supported by empirical research. Written comments from the Norwegian respondents indicated some had difficulties with discerning these two complex concepts. Future use of the instrument should pay special attention to this challenge, for example, by comparing the outcome of using these two different introductory statements (broad versus narrow definition) by randomly distributing them to two different samples. However, the solutions in Norwegian and US were so similar, that the impact of the difference in definitions, if existent, is probably minimal.

EBPAS-50 was originally developed both for research and for applied purposes. The intention behind developing the measure was in large extent to provide a relatively brief measure, both to be used in studies of organizational and individual readiness to implement new evidence-based interventions, and for understanding factors related to adoption, implementation, and continued use of evidence-based interventions [20]. The presented 36-item version builds upon this intention, providing an even shorter instrument measuring the same dimensions as the EBPAS-50. Our procedure for creating a short and pragmatic version may serve as a model for other researchers within the field. Future research on the EBPAS-36 may examine how organizational and individual factors relate to the various EBPAS-36 attitude dimensions, which may help tailor implementation strategies that promote an organizational climate that adopt new interventions positively.

Conclusions

The EBPAS-36 has adequate psychometric properties both in US and in Norwegian samples, hence, indicating cross-cultural validity. It is a brief, pragmatic, and more user-friendly instrument than the EBPAS-50, yet maintains a broad scope by retaining the original 12 measurement domains.

Additional files

Additional file 1: The Evidence-based Practice Attitude Scale-36 (EBPAS-36), English version PDF. (PDF 96 kb)

Additional file 2: The Evidence-based Practice Attitude Scale-36 (EBPAS-36), Norwegian version PDF. (PDF 212 kb)

Additional file 3: The Evidence-based Practice Attitude Scale-36 (EBPAS-36), English version Scoring instructions PDF. (PDF 217 kb)

Additional file 4: The Evidence-based Practice Attitude Scale-36 (EBPAS-36), Norwegian version Scoring instructions PDF. (PDF 108 kb)

Abbreviations

CFA: Confirmatory factor analysis; EBP: Evidence-based practice; EBPAS: Evidence-based Practice Attitude Scale; EPIS: Exploration Preparation Implementation and Sustainment

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Availability of data and materials

Data can be made available by specific request to the authors.

Authors' contributions

MR had the original idea for the study, translated the EBPAS-50 into Norwegian, performed the data gathering in Norwegian samples, performed the statistical analyses, and drafted the manuscript. OF assisted in the translation and supervised the statistical analyses and drafted the description of the analyses and the results, and edited the final manuscript. IS developed the idea to perform the study in collaboration with MR, assisted in the translation process and data gathering, and edited the final manuscript. GAA raised the idea of comparing results from US and Norwegian samples, reviewed the back-translation, advised on analyses, and edited versions of the manuscript. EMT conducted analyses for the US sample and contributed to editing the manuscript. All authors read and approved the final manuscript.

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Competing interests

GAA is an associate editor of *Implementation Science*; all decisions on this paper were made by another editor. The authors declare that they have no other competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

The US study was approved by the appropriate institutional review boards prior to recruitment and informed consent was obtained prior to administering surveys. All Norwegian respondents provided informed consent according to recommendations of the Norwegian data protection authority for the project. Approval from Norwegian regional committees for medical and health research ethics was not needed.

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Paper II

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RESEARCH ARTICLE

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Attitudes of mental health providers towards adoption of evidence-based interventions: relationship to workplace, staff roles and social and psychological factors at work

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Abstract

Background: Gaining insight into factors influencing the adoption of evidence-based interventions (EBI) is essential to ensuring their sustainability in the mental healthcare setting. This article describes 1) differences between professional staff roles in attitudes towards EBI and 2) individual and organizational predictors of attitudes towards adopting EBI.

Methods: The participants were psychologists and psychiatric nurses ($N = 792$). Student t -tests were used to investigate group differences of global attitude scores on the Evidence-based Practice Attitude Scale-36 (EBPAS-36). A confirmatory factor analysis (CFA) of the EBPAS-36 measurement model, and a principal component analysis (PCA) of the factor scores were used to obtain attitudinal components for the subsequent hierarchical regression analyses.

Results: Three second-order attitudinal components were retained and named: *professional concern*, *attitudes related to work conditions and requirements*, and *attitudes related to fit and preferences*. Nurses' global attitudinal scores were more positive than those of psychologists, while clinicians had less positive global attitudinal scores than non-clinicians. Hierarchical regression analysis showed that provider demographic, social and psychological factors in the workplace and staff role predicted attitudes towards adopting EBI, e.g. male gender, older age and working in private practice predicted more negative global attitudes, while working in academia, experiencing social support from colleagues and empowering leadership predicted more positive global attitudes to adopt EBI. The prediction outcomes for the specific attitudinal components are presented, as well.

Conclusion: The findings suggest that implementation efforts may benefit from being tailored to the different needs and values of the affected professionals, including the role of the context they operate within. Implications with a special emphasis on training efforts and organizational development are discussed.

Keywords: Evidence-based interventions, Implementation, Attitudes, Therapists, Mental health

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Background

Worldwide, significant resources are allocated to the development and application of evidence-based treatment programmes and interventions (EBI) in mental health care. However, interventions that show strong empirical support are infrequently implemented in real-life clinical service settings and often fail to cause the expected change in practice [1–5]. The increasing realization from implementation science is that understanding the factors underpinning the actual willingness and decision to adopt an intervention, is necessary in order to proceed with a successful implementation [6]. The adoption or the earliest phase(s) of the implementation process represents a period where decisions to continue (or not) with a full implementation are affected, as well as how the implementation should be done. Consequently, challenges in the early phase of implementation may substantially impact the subsequent implementation process by, e.g., hampering sustainability within the service setting or even lead to a de-implementation [6]. Both individual and organizational factors play a major role in implementation processes, but more knowledge is needed to understand the interplay between these factors [7–9]. Gaining insight into the role of individual professional provider characteristics and organizational context factors may provide a better understanding of how to overcome adoption obstacles; thus, helping to tailor implementation strategies in order to anchor the implementation and increase the uptake of EBI.

Individual and organizational implementation factors

The attitudes of individual mental health professionals are central to the adoption and use of EBI [6, 8, 10, 11], since attitudes towards change and innovation may shape the initial decision process, as well as intentions to try new practices [8, 12]. Moreover, the attitudes of mental health professionals are often mixed, including both enthusiasm and ambivalence towards EBI [11]. Attitudes of professionals also influence and interact with a number of individual demographic factors (e.g., gender, years of experience) and organizational factors (e.g., leadership, social climate and organizational support, policies and system factors) [6–8, 10, 13–18]. For instance, females have reported experiencing *less* time and administrative burdens in connection with learning EBI, compared to males [8], while providers with higher caseloads have reported *greater* time and administrative burdens [8]. Additionally, more experienced clinicians have reported a greater perception of therapy as a balance between art and science [8], whereas less experienced clinicians have reported a greater openness to new practices [19] and valued job security and organizational support for learning new EBI [16]. A survey assessing barriers to and facilitators of adopting EBI among psychotherapists

pointed to training issues (e.g., insufficient time, a high cost and lack of training), clinicians' attitudes (e.g., concerns with a new technique's efficacy, beliefs that the current practice was sufficient and that treatment must be compatible and easy to integrate with the existing therapeutic approach), as well as contextual and institutional factors (e.g., a lack of administrative support, and heavy caseloads) [17]. Also from the somatic health sector, Norwegian nurses pointed to time demands and a lack of skills in locating, understanding and implementing research findings into routine practice as substantial barriers [20]. Practical and logistic factors, such as limited time, high costs and lack of resources, stand out as barriers across several studies from the mental health field [21–24]. As facilitators, higher levels of positive leadership styles, proactive implementation leadership, engaged organizational culture and a climate characterized by high levels of educational support and consultations are associated with more positive provider attitudes to adopting interventions [7, 25, 26]. Conversely, poor organizational climate is associated with a greater perceived divergence between practice as usual and the adoption of EBI [27].

Differences between various professional roles and positions

While some studies have observed no differences among professional disciplines in attitudes to adopting EBI [28], other studies have observed that individuals trained in social work scored higher on global attitudes to adopting EBI and openness to new practices than those trained in psychology [19]. A qualitative cross-disciplinary study of barriers to and facilitators of evidence-based practice among dental hygienists, nurses and psychiatrists reported that psychiatrists expressed a greater mistrust of research publications, while dental hygienists and nurses reported having to negotiate with superiors to introduce changes [29].

Most studies of mental health care provider attitudes have sampled therapists, omitting other relevant stakeholders. This is unfortunate, as other stakeholders may have concerns or attitudes that deviate from those of therapists [30–32]. For instance, a study comparing policy makers to stakeholders (clinicians, administrative staff and consumers) involved in practice revealed that the practice group ascribed a greater importance to the impact of implementation on clinical practice, for instance, expressing concerns with how new interventions might impact the therapeutic relationship and possibilities for individualizing treatment [32]. Differences between leaders and therapists also emerge; one study observed different preferences for specific EBI, hypothesized by the authors to reflect leaders and therapists having different priorities and values, e.g., concerning organizational

investment (costs, training resources and staffing) and end-user experiences such as the ease of use and clinical utility [31]. As leadership also plays an important role in implementation processes, for instance, through fostering an organizational climate facilitating implementation processes and allocation of resources [31, 33–35], the perspective of these staff roles should be of equal interest.

Aims

The current article explored organizational and individual factors related to attitudes towards implementation processes and adoption of evidence-based interventions. More specifically, the aims were to:

- 1) Investigate the differences among professional staff roles in attitudes to adopt EBI, e.g., psychologists vs. nurses, clinicians vs. non-clinicians, and leaders vs. non-leaders.
- 2) Identify provider demographic and organizational predictors of attitudes to adopting EBI.

To achieve this, the Evidence-based Practice Attitude Scale-36 (EBPAS-36) was used to measure providers' attitudes to adopt new interventions, while The Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic) was used to explore social work climate and organizational predictors. Based on the literature, we hypothesized that more positive organizational predictors (i.e., social support, encouraging and developing leadership) would predict more positive global and domain specific attitudes to adopting EBI, while the presence of greater job demands would be associated with more negative or ambivalent attitudes. Further, given the exploratory nature of the study, we hypothesized that both provider demographic and organizational predictors and staff roles would be differentially associated with underlying attitudinal domains, contributing to the developing literature on how implementation strategies need to be targeted to secure adherence to interventions in everyday practice.

Methods

Procedure and sample

The overall procedure is described elsewhere [9]. Participants were members of the Norwegian Psychological Association (Sample 1, $N = 3598$) and the Norwegian Nurses Organization, professional group for nurses in mental health and substance abuse (Sample 2, $N = 1436$). Participants were invited by emails sent out by their respective organizations, containing information about the study as well as a web link providing access to the survey.

A total of 856 psychologists and psychology students (24.0% response rate for sample 1) and 191 nurses (13.3% response rate for sample 2) completed the survey

($N = 1047$). For the present study, subjects not completing any of the EBPAS-36 items and those with missing data on entire EBPAS-36 subscales were excluded ($n = 192$). Since the aim of the paper concerned attitudes of professional practitioners and their work settings, the psychology students ($n = 63$) were excluded from the sample. Thus, the final sample ($N = 792$) included 671 licensed psychologists (84.7%) and 121 licenced nurses (15.3%).

Measures and assessment

Conceptualization

The survey was framed within the context of “specific research-supported interventions only” (i.e., therapies and methods) [9]. This was done in an effort to make the important distinction between the more comprehensive concept of *evidence-based practice (EBP)*, defined as “the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” and *evidence-based interventions (EBI)*, referring to specific research-supported interventions [36, 37]. It has been assumed that a confusion or misinterpretation of these concepts may play a role in providers' ambivalent perceptions of evidence and research findings per se, as well as the integration of science into routine practice [11].

Demographic variables

The demographic variables included gender, age, educational level and workplace (all using response categories as shown in Table 1), as well as the number of years worked in substance abuse and/or mental health service, having leadership responsibilities (yes/no), working as a clinician (yes/no), and professional discipline (psychologists/nurses).

Attitudes

Attitudes were measured with the Evidence-based Practice Attitude Scale-36 (EBPAS-36) Norwegian version. The EBPAS-36 [9] is a short version of the Evidence-based Practice Attitude Scale-50 [8], validated in both US and Norwegian samples [8, 9]. The EBPAS-36 assesses mental health and social service provider's attitudes towards adopting evidence-based interventions. While the original EBPAS instrument consisting of 15 items measured 4 attitudinal domains [19, 38], the subsequent work on the EBPAS-50 and EBPAS-36 expanded the instrument to be able to cover a wider domains of attitudes [8, 9]. For a full description and presentation of the EBPAS-36 and its items, we refer to Rye et al., 2017 [9]. The EBPAS-36 items cover 12 subscales, each with 3 items (the subscale names are provided in italics): 1) the likelihood of adopting EBI given *requirements* to do so (subscale Cronbach alpha for current sample, $\alpha = .92$), 2) the intuitive *appeal* of adopting EBI ($\alpha = 0.60$), 3) *openness* to new practices ($\alpha = 0.75$), 4) the perceived *divergence* of providers usual practice

Table 1 Demographic characteristics

Characteristics	Psychologists		Nurses	
	(n = 671)		(n = 121)	
Gender				
Female	428	(63.8)	102	(84.3)
Male	227	(33.8)	15	(12.4)
Missing	16	(2.4)	4	(3.3)
Age				
≤ 30 years	70	(10.4)	2	(1.7)
31-40 years	239	(35.6)	17	(14.0)
41-50 years	167	(24.9)	30	(24.8)
51-60 years	110	(16.4)	53	(43.8)
≥ 61 years	82	(12.2)	19	(15.7)
Missing	3	(0.4)	0	(0)
Highest Education - Clinical Psychologists ^a				
Both Ph.D. and clinical specialist degrees	28	(4.2)	n/a	n/a
Ph.D.	26	(3.9)	n/a	n/a
Clinical specialist degree	322	(48.0)	n/a	n/a
Other continued education	23	(3.4)	n/a	n/a
Missing	2	(0.3)	n/a	n/a
Highest Education - Nurses ^b				
Ph.D.	n/a	n/a	2	(1.7)
Master's degree	n/a	n/a	18	(14.9)
Other continued education	n/a	n/a	97	(80.2)
Missing	n/a	n/a	2	(1.7)
Working as clinicians	586	(87.3)	105	(86.8)
Tenure in substance abuse and mental health (years)	10.4	(9.9)	18.0	(9.2)
Managerial responsibilities	160	(23.8)	19	(15.7)
Working evidence-based	346	(51.6)	78	(64.5)
Type of workplace				
Outpatient units - adults	119	(17.7)	20	(16.5)
Outpatient units - youth	71	(10.6)	2	(1.7)
Outpatient unit - abuse	30	(4.5)	4	(3.3)
Inpatient unit >2 months	30	(4.5)	10	(8.3)
Inpatient unit <2 months	22	(3.3)	11	(9.1)
Research/education clinical	32	(4.8)	0	(0)
Research/education non-clinical	39	(5.8)	6	(5.0)
Private practitioners with subsidies ^c	49	(7.3)	n/a	n/a
Private practitioners without subsidies ^d	27	(4.0)	n/a	n/a
Governmental (e.g., family counselling services)	39	(5.8)	1	(0.8)
Municipal health and care services	70	(10.4)	32	(26.4)
Other ^e	141	(21.0)	29	(24.0)
Missing	2	(0.3)	6	(5.0)

Data presented as n (%) or mean (SD), if appropriate. n/a = categories not applicable. ^aAfter an initial cand.psychol. degree. ^bAfter an initial Bachelor degree.

^cPsychologists with clinical specialist degree working in private practice with operating subsidies from the Norwegian state, meaning patients' costs of treatment exceeds the covered costs of public help. ^dPsychologists and nurses working in private practice without subsidies, see ^c. ^eClinicians with a combination of multiple work settings, e.g., both inpatient and outpatient patients

from research-based or academically developed interventions ($\alpha = 0.70$), 5) *limitations* of EBI and their inability to address client needs ($\alpha = 0.86$), 6) *EBI fit* with the values and needs of the client and clinician ($\alpha = 0.59$), 7) negative perceptions of *monitoring* ($\alpha = 0.84$), 8) *balance* between perceptions of clinical skills and science ($\alpha = 0.67$), 9) time and administrative *burden* of learning an EBI ($\alpha = 0.76$), 10) *job security* related to using/learning an EBI ($\alpha = 0.85$), 11) perceived *organizational support* for adoption ($\alpha = 0.86$), and 12) positive perceptions of receiving *feedback* ($\alpha = 0.83$). The total score represents a respondent's global attitude towards EBI ($\alpha = 0.87$). The items are formulated as statements, and responses are given on a 5-point Likert scale (from 0 designating "not at all" to 4 meaning "to a very great extent"). To reduce response biases, 15 items belonging to five subscales (divergence, limitations, monitoring, balance and burden) are negatively framed and reverse-scored before computing the total score. A higher total score indicates a more positive global attitude to adopting EBI. The EBPAS-36 has shown adequate psychometric properties with regard to reliability, construct- and cross-cultural validity and being pragmatic [9].

Organizational features and work climate

Organizational features and work climate was measured with The Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic). The QPS Nordic is developed from organizational theories [39]. The instrument consists of 129 items assessing work-related tasks and individual, social and organizational factors. For the present study, a selected set of subscales was chosen following discussion with colleagues regarding relevant subscales. Based on their feedback, a consensus discussion among two of the authors (MR and IS) led to the inclusion of the following six subscales (20 items) as most relevant for the study aims: 1) *quantitative job demands* (4 items, subscale Cronbach alpha for current sample, $\alpha = .83$) measuring the extent of the experienced workload, 2) *control over decisions* (5 items, $\alpha = 0.75$) measuring the influence on decisions regarding own work place, workload, work methods and collaborating partners, 3) *support from colleagues* (2 items, $\alpha = 0.80$) asking for an assessment of social interaction when needing collegial assistance, 4) *support from the nearest superior* (3 items, $\alpha = 0.91$) measuring the social interaction when needing a superior's assistance, 5) *empowering leadership* (3 items, $\alpha = 0.90$) assessing encouragement from superiors in decision-making, sharing personal opinions and development of abilities, and 6) *social climate* (3 items, $\alpha = 0.73$) measuring the social climate at the workplace. In addition, 1 single item from the domain organizational climate was used: "What is the climate like in your work unit? Rigid and rule-based". Responses are given on a 5-point Likert

scale ranging from 1 representing "very little or not at all" to 5 "very much", or 1 "very seldom or never" to 5 "very often or always", as appropriate. As for the whole instrument, the QPS has shown acceptable psychometric properties [40]. The predictive validity related to long-term sick leave is good [41]; hence, comparisons between professional groups are valid [40, 41].

Statistical analyses

Confirmatory factor analysis (CFA)

To develop a second-order model of attitudes towards adopting EBI to use as outcome variables for predictive analysis, a CFA was conducted in Mplus v8. The model specification was based on the 12 subscales of the recently developed EBPAS-36. The parameters were estimated with the full maximum likelihood estimation procedure (FIML). Robust standard errors (MLR) were obtained to accommodate non-normal item distributions. The following model fit indices were used: χ^2 , root mean square error of approximation (RMSEA), standardized root mean error (SRMR) and comparative fit indices (CFI). In line with Hu and Bentler's cutoff recommendations [42], RMSEA values $< .06$, SRMR $< .08$ and CFI > 0.95 indicate an acceptable model fit. The primary factor scores were saved in Mplus and subjected to an exploratory second-order principal component analysis (PCA), using SPSS v25. Correlation analysis, t-tests and hierarchical regression analysis were conducted in SPSS v25. Missing EBPAS-36 and QPSnordic item scores were imputed using the Expectation Maximization (EM) method. Values were imputed separately for each subscale's set of items. Bivariate associations were calculated as Pearson correlation coefficients.

Multiple regression analyses

Hierarchical multiple regressions models were built to examine the predictive value of demographic background variables, and social and psychological factors at work for attitudes towards adopting EBI. Categorical predictors with three or more categories were dummy coded. Data were checked for influential cases according to Cook's distance criteria, with no values with Cook's distance greater than 1. For all analyses, predictor variables were entered in the same predefined blocks. Within each block, variables not contributing to the prediction were manually removed. In the first block, gender, age and years of experience were entered. The highest level of education was entered in the second block. In the third block, workplace and the indicator of being employed at a work site working systematically with one or more EBI were entered. In the fourth block, QPSnordic subscales and the single QPSnordic item regarding the social climate being rule-based and rigid were entered. Indicator variables of the staff role being a

clinician, holding a position of a psychologist or a nurse and having leadership responsibilities were in the fifth and last block. The order of entering variables was decided to examine whether staff role contributed significantly to the model after controlling for all other predictor variables, including QPSnordic variables.

Results

Descriptive data of the two samples are given in Table 1. Both samples were made up mostly of women. Nurses were older and reported more years of clinical experience. The majority in both samples worked as clinicians. Comparable proportions of psychologists and nurses held managerial responsibilities.

Second-order model of attitudes

The CFA of the 12 EBPAS-36 subscales yielded acceptable model fit indices, as indicated by a low degree of misspecification errors (RMSEA = .048 (CI_{90%} .045–.050); SRMR = .064) and a fair incremental fit (CFI = .92, TLI = .90). The CFA factor scores were saved in Mplus and subjected to a principal component analysis (PCA) in SPSS, hence representing a second-order factor analysis. The analysis extracted four components with eigenvalues greater than 1 ($R^2 = 74.7%$). However, a simpler three component solution was preferred due to fewer cross-loadings and being more parsimonious. The component loadings were promax rotated and are presented in Table 2. The first component was labelled *professional concern*, as it included perceived limitations of EBI (subscale 5), balance and divergence between clinical practice and science (subscales 8 and 4), negative perceptions of monitoring (subscale 7), and a lack of openness to new practices (subscale 3). The second-order component was labelled *attitudes related to work conditions and requirements*, encompassing the time and administrative burdens of learning new interventions (subscale 9), job security and perceived organizational support (subscales 10 and 11) and adoption of imposed evidence-based interventions (subscale 1). Burden (subscale 9) had a high cross-loading on the *professional concern* component, thus indicating both second-order dimensions. The appeal subscale also had a significant cross-loading on the third second-order component labelled *attitudes related to fit and preferences*, thus also being partly explained by this factor. The third and last component reflected the personal willingness to use new interventions based on autonomy, fit with the values, preferences and needs of both patient and provider, as well as positive perceptions of feedback.

Aim 1: Differences between different professional roles and positions

On the EBPAS-36 total scale, psychologists as a group reported lower global attitude scores ($M = 2.67$, $SD = 0.47$)

Table 2 Second-order principal components analysis and correlation among components ($N = 792$)

PCA components	Component loadings		
	1	2	3
Professional concerns			
Limitations	.83		
Divergence	.81	-.34	
Balance	.76		.48
Monitoring	.72		
Openness	-.60	.38	
Work conditions and requirements			
Burden	.67	.74	
Organizational support		.68	
Job security		.62	
Appeal		.62	.47
Requirements		.61	
Fit and feedback			
Fit			.84
Feedback			.68
Eigenvalues	4.39	2.37	1.19
Explained variance (%)	36.57	19.73	9.93
Correlations ^a			
Professional concern	--		
Work	-.30**	--	
Fit	-.08*	.30**	--

^aPearson's r coefficients between second-order components. *Indicates significance at the $p < .05$ level, ** indicates significance at the $p < .001$ level

than nurses ($M = 2.76$, $SD = 0.39$); this difference was statistically significant (95% CI, $-.18$, $-.00$), $t(790) = -2.06$, $p = .039$). The effect size difference was small ($g = 0.20$). Respondents working as clinicians reported significantly lower global attitude scores ($M = 2.67$, $SD = 0.47$) than non-clinicians ($M = 2.78$, $SD = 0.39$); this difference was statistically significant (95% CI, $-.20$, $-.01$), $t(790) = -2.10$, $p = .036$). This effect size difference was also small ($g = 0.24$). For leaders vs. non-leaders, the difference in EBPAS-36 total scale score was not significant ($M = 2.72$, $SD = 0.46$ and $M = 2.68$, $SD = 0.46$, respectively; $t(780) = 1.02$, $p = .31$).

The mean EBPAS-36 scores indicating global attitudes among the different professional roles and positions ranged between 2.67 and 2.78. Comparable mean scores for the EBPAS-36 measure, as used in the current study, is lacking. However, as compared to the study by Okamura et al., [16], the mean scores were all below their reported mean EBPAS-50 total score on 2.89, and comparable with mean EBPAS-15 total score on 2.73 from an examination of U.S. norms in a national U.S. sample of 1089 mental health providers across 26 states [19].

Aim 2: Predictors of attitudes towards adopting EBI

The results of the regression analyses are presented in Table 3. The model predicting global attitudes to adopting EBI was statistically significant ($R^2 = .20$, $F(11, 744) = 17.01$, $p < .0005$; adjusted $R^2 = .19$). The variables contributing significantly to the full model were as follows: gender (males scoring lower than females) and age (older individuals scoring lower than younger) in block 1; workplace (individuals in non-clinical research and

educational settings scoring higher, while private practitioners scored lower than the reference group) and working at a site systematically applying one or more EBI (scoring higher than working outside such sites) in block 3; social and psychological work factors (individuals receiving support from colleagues and experiencing empowering leadership scoring higher, while those reporting control over their decisions scored lower) in block 4. Staff role in block 5 did not contribute

Table 3 Hierarchical Multiple Regression with factors predicting EBPAS-36 total score and second-order components

Step and predictor	EBPAS-36 total scale ^a			Professional concerns ^b			Work conditions and requirements ^c			Fit and preference ^d		
	ΔR^2	Init. β	Fin. β	ΔR^2	Init. β	Fin. β	ΔR^2	Init. β	Fin. β	ΔR^2	Init. β	Fin. β
Step 1:	.07**			.01*			.12**			.04**		
Gender, female (ref)		-.13**	-.10*		n.s.			-.12**	n.s.		-.18**	-.16**
Age		-.21**	-.15**		n.s.			-.32**	-.24**		-.08*	n.s.
Years of experience					.12**	.09*		n.s.			n.s.	
Step 2:	.01*			.02**			.01*			.01*		
Education, specialist/MA (ref)												
Cand.Psychol/Bachelor nurse		n.s.			n.s.			n.s.			n.s.	
Unfinished cont. education		n.s.			n.s.			n.s.			n.s.	
Other		.11*	n.s.		-.09*	n.s.		.09*	n.s.		n.s.	
Ph.D.		.n.s.			n.s.			n.s.			-.10*	-.09*
Dual competence		.08*	n.s.		-.12**	-.07*		n.s.			n.s.	
Step 3:	.08**			.07**			.07**			.00		
Workplace, Outpatient (ref)												
Inpatient		n.s.			n.s.			n.s.			n.s.	
Research/education clinical		n.s.			n.s.			-.10*	-.10*		n.s.	
Research/education non-clinical		.10*	.12**		-.10*	-.11*		n.s.			n.s.	
Private practitioners		-.19**	-.12*		.16**	.10*		-.24**	-.18**		n.s.	
Governmental		.08*	n.s.		-.08*	n.s.		n.s.			n.s.	
Municipal		n.s.			n.s.			n.s.			n.s.	
Other		n.s.			n.s.			n.s.			n.s.	
Systematically evidence-based		.13**	.09*		-.13**	-.09*		-.07*	n.s.		n.s.	
Step 4:	.04**			.04**			.06**			.06**		
Social climate, rule-based		n.s.			.10*	.10*		n.s.			n.s.	
Job demands		n.s.			n.s.			.19**	.19**		n.s.	
Control decisions		-.09*	-.09*		.09*	.10*		-.13**	-.13**		.12**	.14**
Social climate		n.s.			n.s.			.09*	.09*		n.s.	
Support colleagues		.13**	.13**		-.08*	-.08*		n.s.			.13**	.13**
Support superiors		n.s.			n.s.			n.s.			n.s.	
Empowering leadership		.15**	.15**		-.13*	-.12*		n.s.			.09*	.11*
Step 5:	.00			.01*			.00			.01*		
Working as clinicians		n.s.			n.s.			n.s.			n.s.	
Position, psychologist (ref)		n.s.			n.s.			n.s.			n.s.	
Managerial responsibilities		n.s.			.12**	.12**		n.s.			.11*	.11*

Higher standardized beta coefficients (β) indicate a stronger association; fin. β is adjusted for all previously entered variables. ^aTotal $R^2 = .20$, adjusted $R^2 = .19$. ^bTotal $R^2 = .15$, adjusted $R^2 = .13$. ^cTotal $R^2 = .25$, adjusted $R^2 = .25$. ^dTotal $R^2 = .12$, adjusted $R^2 = .11$ * indicates significance at the $p < .05$ level, ** indicates significance at the $p < .001$ level

statistically to the model. The following effects dropped out as variables were added to the model: other continued education, having dual competence and being in a governmental workplace.

The model predicting the EBPAS-36 second-order component *professional concern* was statistically significant, $R^2 = .15$, $F(12, 730) = 10.39$, $p < .001$; adjusted $R^2 = .13$. The variables contributing significantly to the full model were as follows: years of work experience (having more years being associated with higher scores) in block 1; education (individuals with dual competence scoring lower than the reference group) in block 2; workplace (individuals in non-clinical research and educational settings and in governmental positions scoring lower, and private practitioners scoring higher than the reference groups working with outpatients), and working at a site systematically applying one or more EBI (scoring lower than individuals not working at such sites) in block 3; social and psychological work factors (the social climate being rigid/rules-based and having control over decisions scoring higher, receiving support from colleagues and experiencing empowering leadership scoring lower) in block 4; and staff role (being a non-leader higher than being a leader) in the final block. The following effects dropped out, as variables were added to the model: other continued education and being in a governmental workplace.

The model predicting EBPAS-36 second-order component *attitudes dependent on work conditions and requirements* was statistically significant ($R^2 = .25$, $F(9, 746) = 28.18$, $p < .0005$; adjusted $R^2 = .25$). The variables contributing significantly to the full model were as follows: age (older individuals scoring lower than younger) in block 1; workplace (combined clinical research and educational positions and private practitioners scoring lower than the reference group) in block 3; social and psychological work factors (experiencing a higher workload and a more positive social climate associated with higher scores; having control of decisions associated with lower scores) in block 4. Staff role in block 5 did not contribute statistically to the model. The following effects dropped out as variables were added to the model: gender, other continued education and working at a site systematically applying one or more EBI.

The last model predicting EBPAS-36 second-order component *attitudes related to fit and preferences* was also statistically significant ($R^2 = .12$, $F(7, 750) = 14.60$, $p < .0005$; adjusted $R^2 = .11$). The variables contributing significantly to the full model were as follows: gender (men scoring lower than females) in block 1, education (individuals with Ph.D. degrees scoring lower than the reference group) in block 2; social and psychological work factors (individuals experiencing more control over decisions, receiving support from colleagues and experiencing empowering

leadership scoring higher); staff role (non-leaders scoring higher than leaders). The following effect dropped out as variables were added to the model: age.

Discussion

The current article provides insights of importance for the adoption or the earliest phases of implementation processes. The first aim was to investigate the differences between professional staff roles; the second was to identify how provider demographic, social and psychological factors at work and staff roles predicted professionals' attitudes to adopting EBI. To explore predictive factors of attitude towards adopting EBI, a simpler structure encompassing three second-order components was used following a principal component analysis of all 12 primary factors. The three components were labelled *professional concern*, *attitudes related to work conditions and requirements*, and *attitudes related to fit and preferences*. Taken together, our results suggest some group differences between staff roles. However, we also found that social and psychological organizational work factors might be more important as predictors across staff roles.

Specifically, the analyses of differences between staff roles revealed that nurses reported holding more of a positive global attitude towards adopting EBI than psychologists, while clinicians reported a more negative global attitude than non-clinicians. Possible explanations for this might include psychologists' and nurses' different roles and positions in a treatment setting [29]. In such settings, psychologists might have a more independent professional role than nurses and may value making independent decisions regarding which treatments to use and their delivery. Additionally, various staff roles might be more concerned with issues related to their work areas, that for the group of clinicians might be more obviously related to their frontline clinical work. This again can be seen in light of findings by for instance Green and Aarons [32] concerning different stakeholder perspectives, highlighting that issues important to clinicians are connected to the impact of interventions on the aspects of clinician practice, e.g., the therapeutic relationship and the ability to intervene to meet the needs of an individual patient. The hierarchical regression analysis demonstrated that having leader responsibility or not was a significant predictor of attitude towards EBI. Here, non-leaders attitudes were more influenced by professional concerns (i.e., the limitations of EBI, the importance of clinical experience over science, negative perceptions of monitoring, a lack of openness to new practices and the time and administrative burdens), as well as by fit and preference (i.e., the fit with the clinicians' current approach, the perceived needs of clients and positive perceptions of feedback). In line with Stadnick et al., [31] reporting on possible variation in

priorities, values and responsibilities specific to leaders and therapist, this might reflect that non-leaders feel more concern as end-users of the intervention, and hence express a greater concern with how it interferes with everyday practice.

Provider demographics and social and psychological factors at work predicted both global and second-order attitudinal components. In line with previous studies [8], we found that men reported more negative attitudes towards adopting EBI than did females. Our data provide no explanation of why males are more conservative in adopting EBI, but the finding indicate that gender in itself may be a factor that implementation efforts should be aware of. We also found that younger respondents held more positive attitudes than older respondents, on both global attitudes and *attitudes related to work conditions and requirements*, capturing issues of organizational support, as well as education, training, job security and interventions being imposed. That the younger respondents might be more occupied with issues of organizational support, training and education is consistent with previous findings by Okamura and colleagues [16], showing that younger therapists assigned greater value to job security and organizational support for learning new EBI. Younger respondents might naturally be in a period of their career where their focus is more on acquiring knowledge and skills needed for the tasks they are employed to perform, when the demands of the work environment might be more strenuous, and the necessity of the appropriate organizational support is perceived more eminent. For the sake of implementation strategies, this is not to say that organizational support and training are not important to older respondents but are perhaps more favoured by younger respondents, something which might be a valuable question for future research to address. In addition, our study showed that more years of experience also predicted a higher score on the *professional concern* domain. This emphasizes the importance of implementation strategies being tailored to the different needs and views of providers in different phases of their careers, as the more experienced individuals might be more occupied with or affected by their cumulative experiences over time and how the intervention to be implemented interferes and balances with one's usual everyday practice. When looking at the literature on important implementation strategies, both training issues and interventions that fit with real world context have been increasingly recognised as essential to target [18, 43–45]. Developing training strategies, providing proper organizational support and securing intervention initiatives being appropriate for a given setting are not straightforward, given the complex multi-level challenges associated with implementation efforts [45, 46]. Such challenges are for instance associated with the differences between agency settings, the availability of resources, the

multitude of different intervention components that are to be taught, the different needs of clinicians and the presenting problems of the clients [46]. This picture poses challenges on organizations planning intervention initiatives, for instance concerning which intervention(s) to implement and to what extent, as well the scaling of training needed [43]. It also poses both a need and encouragement for future research to continue address both which and how training efforts best can facilitate the uptake of new interventions and to secure that organizations lay grounds for learning environments fostering and motivating staff that are capable of delivering the intended service.

Regarding workplace, those working as private practitioners held more negative global attitudes and more *professional concern* compared to those working in public outpatient services, whereas those working non-clinically with research and education held more positive global attitudes and less concern regarding adoption of EBI. Being a private practitioner, as well as working in a combined position with both clinical work and research and education, also predicted a lower score on *attitudes related to work conditions and requirements*. Our ability to report the reasons for these differences, which likely also are complex, is beyond the scope of this article. However, some possible explanations which future research might consider are offered. For instance, the questions concerning work conditions and organizational support may not apply as much to those working in private practice, while questions regarding professional concern might be less familiar to those representing academia. Another possibility may be tied to the so-called science-practice gap, where private practitioners may feel more ambivalent or sceptic towards the adoption and use of EBI than those working in other settings. They may also have chosen a private direction in order to attain more autonomy than is possible within the public mental health system. Further, our results showed that employees at sites that systematically applied one EBI or more held more positive global attitudes and less *professional concerns* than not working at such sites, indicating organizational context, experience and knowledge of EBI influencing attitudes [7].

As for the social and psychological factors at work, the experience of being more in control of decisions regarding one's own work situation predicted more professional concern, putting less value on work conditions and requirements, as well as having a greater willingness to use interventions based on shared preferences with patients and colleagues and the perception of valuing feedback from others. Additionally, empowering leadership encompassing the experience of being encouraged by superiors to participate in decision making, opinion sharing and skill development, as well as the perception of receiving collegial assistance when in need, stood out

as predictors of more positive attitudes and greater willingness to use interventions based on fit and shared preferences. Experiencing an empowering leadership style and collegial assistance was also related to lower professional concern. Finally, our results supports previous research regarding barriers to adopting EBI [8, 16], with the experience of higher workloads predicting *attitudes related to work conditions and requirements*, including issues related to perceived time and administrative burden of learning new interventions, and the need of organizational support, training and education.

Limitations

Limitations include the low response rate, a familiar problem in web-based survey studies [47] that may represent a risk of potential bias of results. As this represents less of a problem for a survey applying regression analysis than for prevalence studies, a low response rate is considered only a minor limitation of this study [48]. Another concern has to do with a potential confusion around the terms *evidence-based practice* and *evidence-based treatments and interventions*. Although they were specified in the invitation emails and written instructions, the respondents might have been confused about the actual meanings of the terms being used. Written comments also showed that certain respondents experienced difficulty providing nuanced responses to such complex concepts in a survey format. The effect size of the reported group differences between staff roles were small, hence a future study using a design that could reveal practical implications of these differences would be a natural next step. It is beyond the scope of this study to explain the differences in causal mechanisms; one should take care to avoid over-interpretation. The sole focus on the adoption or initial implementation phases is another limitation in the present study, given that later implementation phases might involve other processes and challenges of a multi-level nature [14]. The regression models predicted approximately 12–25% of the total variances. This reflects the complex mechanisms involved and that several factors in addition to those studied also contribute to attitudes towards adoption. For instance, as the Dalheim et al., study among Norwegian nurses suggested [20], lack of skills and confidence to implement EBI might act as an important barrier, regardless of level of attitudes. Future research should address these issues using a variety of research methodologies to obtain a deeper and more comprehensive understanding of the complexities of implementation challenges.

Conclusion

Implementation efforts in healthcare service settings are particularly prone to challenges, as they are dependent on both the actions of every individual practitioner as

well as organizational influences within the complex and constantly changing contexts of a hospital or healthcare delivery environment [14]. Previous studies have both observed and failed to observe discrepancies between different staff roles and professions concerning attitudes towards adopting EBI [19, 28, 29]. However, mental health providers constitute a heterogeneous group of individuals with various backgrounds, roles and disciplines that might impact their views on adopting evidence-based interventions. Taken together, our findings highlight the importance of both individual and organizational factors by indicating that professionals' attitudes towards change and innovation are influenced by the inner context of their work environment, being the supportiveness by colleagues and the leadership style of superiors, as well as individual autonomy, years of experience, work conditions and organizational characteristics. Solutions to barriers need to be directed to the dimension where the barrier occurs while recognizing that multilevel approaches are essential to success in overcoming barriers [15, 49, 50]. To ignore both the knowledge of and potential causes of providers' concerns about using EBI might be quite risky. First, ignoring the viewpoints of clinicians may widen the so-called scientist-practitioner gap. Furthermore, ignoring clinicians' concerns and their overall work environment may hamper the substantial efforts applied to implement interventions in the real-world practice settings, leading to waste of invested resources. Our results suggest that proper training, adequate organizational support, a working environment accepting professionals' influence on important decisions related to adoption of new interventions, experiencing colleagues' support and an empowering leadership style, may encourage the experience of participation in implementation processes, as well as opportunities for personal development. As organizational leadership plays an important role in improving the context for adoption of interventions [7, 25], mental health service organizations may benefit from improving leadership skills in preparation for implementing EBI, thereby establishing a foundation for a work and collegial climate where learning and new skills development might flourish. In such an environment, different staff roles and positions have different level of experience, perspectives, needs and values that are important to them. This again has implications for the choice and design of training and support efforts that most efficiently lead to successful adoption and sustainability of EBI, with the ultimate goal of advances in psychotherapy research reaching the actual people in need.

Abbreviations

CFA: Confirmatory factor analysis; EBI: Evidence-based interventions; EBP: Evidence-based practice; EBPA: The Evidence-based Practice Attitude Scale; PCA: Principal component analysis

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Availability of data and materials

The data analysed for this manuscript can be made available from the corresponding author on reasonable request.

Authors' contributions

MR conceived the original idea for the study, performed the data-gathering in Norwegian samples, performed the statistical analyses and drafted the manuscript. OF supervised the statistical analyses, drafted the description of the analyses and the results and edited the final manuscript. IS developed the idea to perform the study in collaboration with MR, assisted with the data-gathering and edited the final manuscript. All authors have read and approved the final manuscript.

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Ethics approval and consent to participate

Respondents provided informed consent according to recommendations of the Norwegian data protection authority for the project. Approval from the Norwegian regional committees for medical and health research ethics (REC) was not needed as data were anonymous and this study is outside of activities that requires approval from the Norwegian REC.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Paper III

Rye, M., Rognmo, K., Aarons, G. A., & Skre, I. Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM.

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Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM

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Compliance with ethical standards:

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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Abstract

Implementation of routine outcome monitoring (ROM) in mental health care is progressing slowly. Knowledge about factors influencing implementation, including health providers' attitudes to ROM, is called for. Following a survey among 662 psychologists and nurses, this article describes 1) the development of a short instrument measuring provider attitudes to ROM, derived from the Evidence-based Practice Attitude Scale (EBPAS), and 2) how attitudinal domains relate to clinician's current use of standardized instruments for treatment evaluation. EBPAS-ROM showed concurrent value in predicting aspects important for the implementation of ROM, including perceived limitations of ROM and the value of organizational support.

Keywords: routine outcome monitoring, feedback, audit, attitudes, EBPAS

Efforts to integrate science and practice in mental health care increasingly involve the implementation of routine outcome monitoring and feedback (ROM). ROM involves systematic evaluation of patient progress throughout the course of treatment, using standardized outcome measures to receive client feedback of mental health status and treatment outcome as an integral part of the clinical service provided (Lambert, 2007; Wampold, 2015). From both the patient, therapist or service provider and service manager point of view, access to feedback of patient progress should be of vital interest. This for instance with regard to guiding decisions about carrying on or reconsidering course of treatment, and guiding the distribution of resources, not only for which treatments should be delivered in which doses to which patients, but also the training and support needed for the therapist delivering the treatment (Lambert, 2007; Wampold, 2015). While a recent Cochrane review call for more research to be able to support its use (Kendrick et al., 2016), ROM has shown to improve client outcomes in numerous studies, especially for patients who are off-track or not responding to treatment as expected (e.g., Amble, Gude, Stubdal, Andersen, & Wampold, 2015; Bickman et al., 2016; Bickman, Kelley, Breda, de Andrade, & Riemer, 2011; Brattland et al., 2018; Carlier et al., 2012; De Jong et al., 2014; Lambert, 2007; Lambert, 2001; Shimokawa, Lambert, & Smart, 2010; Simon, Lambert, Harris, Busath, & Vazquez, 2012). As implementation of ROM in routine care is scarce and met with obstacles (Boswell, Kraus, Miller, & Lambert, 2015; Goldman & Seybolt, 2015; Hall et al., 2014; Ionita & Fitzpatrick, 2014; Sharples et al., 2017; Wampold, 2015), understanding implementation factors that play a role in the quality and use of ROM are important (Brattland et al., 2018; Lambert, 2007; Miller, Hubble, Chow, & Seidel, 2015). While the attitudes and willingness among health care providers to use ROM have been suggested as an important explanatory factor for the low ROM implementation rate, little research has been done on this topic (as discussed also by for instance Kaiser, Schmutzhart, & Laireiter, 2018; Norman, Dean,

Hansford, & Ford, 2014). As end-users of ROM, more knowledge regarding provider attitudes, as well as how they are to be measured is essential to addressing implementation obstacles. The ultimate goal of this line of inquiry is to facilitate the successful implementation of ROM, with the potential of better quality of the mental health care services and better patient outcomes.

Existing literature on provider attitudes and views towards ROM suggest they both report benefits and concerns regarding its use (e.g., Boswell et al., 2015; Edbrooke-Childs, Wolpert, & Deighton, 2016; Gleacher et al., 2016; Hall et al., 2014; Hatfield & Ogles, 2004; Ionita, Fitzpatrick, Tomaro, Chen, & Overington, 2016; Miller et al., 2015; Norman et al., 2014; Overington, Fitzpatrick, Hunsley, & Drapeau, 2015; Sharples et al., 2017; Stasiak et al., 2013; Wolpert, Curtis-Tyler, & Edbrooke-Childs, 2016). A recent study using semi-structured interviews and focusing on clinicians attitudes and facilitators and barriers to implementing ROM (Sharples et al., 2017) identified training, practical experience, and ongoing support as crucial facilitators of use at both the individual clinic level and individual clinical session level. The same study also highlighted the balance between a mandatory and consistent use of ROM, with clinicians reporting to struggle with standardized use of ROM in sessions when it was not seen as appropriate. Another study using semi structured interviews asking for advantages and disadvantages for implementing ROM identified that providers thought ROM could help in the monitoring, reflection and evaluation of progress, while they perceived disadvantages mainly concerning time and effort, fear about how information would be used, and concerns about therapists being evaluated (Norman et al., 2014). An online survey study among Austrian psychotherapist (Kaiser et al., 2018) found that prior knowledge and experience with monitoring was associated with more positive attitudes, while concerns included administration and increased work burden. Practical concerns regarding administration and efforts with data collection were also described in a review by Boyce,

Browne, and Greenhalgh (2014). Reluctance to use ROM has also been suggested to stem from clinicians placing more value on their own clinical judgment rather than what is provided by ROM (Hall et al., 2014; Hatfield & Ogles, 2004), views that ROM can depersonalize and objectify themes that are essentially subjective (Kaiser et al., 2018; Norman et al., 2014; Wolpert et al., 2016), or concern that it is used for service and efficacy evaluations rather than for the benefit of patients (Norman et al., 2014). Other reported barriers include clinicians questioning its clinical utility (Boyce et al., 2014; Hall et al., 2014; Stasiak et al., 2013), and the use of information technology systems (Bickman et al., 2016; Gleacher et al., 2016). Reported facilitators include training (Edbrooke-Childs et al., 2016; Overington et al., 2015), prior experience with outcome monitoring (Kaiser et al., 2018) and support to overcome contextual barriers like administrative processes (Edbrooke-Childs et al., 2016; Sharples et al., 2017). Thus, there is a need for a better understanding of the range of clinicians' attitudes and perceptions of ROM, and how such attitudes might relate to use of ROM in the clinical setting.

Aims

The present study builds on knowledge from implementation science which we suggest is also relevant for the implementation of ROM. Further, the development of pragmatic (see Glasgow & Riley, 2013) and psychometrically strong instruments measuring implementation processes is essential to overcome implementation obstacles through the development of appropriate implementation strategies (Lewis et al., 2015; Powell et al., 2017; Rye, Torres, Friberg, Skre, & Aarons, 2017). Based on our previous work on developing the shortened Evidence-based Practice Attitude Scale-36 (Rye et al., 2017), measuring providers' attitudes to adopting and using new interventions more generally, the current study aimed to adapt the EBPAS instrument to a brief and valid instrument measuring provider attitudes to the use of ROM. Furthermore, we aimed to explore how ROM attitudinal domains predicted

current use of standardized instruments as means of treatment evaluation (e.g. treatment planning, ongoing evaluation during the course of treatment and assessment of treatment effect), which can be seen as some of the central elements of ROM. As adapted from well-known and prior validated instruments for assessing provider attitudes (Aarons, 2004; Aarons, Cafri, Lugo, & Sawitzky, 2012; Rye et al., 2017), we expected the adapted EBPAS-ROM instrument to show good psychometric properties and to have a broad scope while simultaneously being relatively short, pragmatic and have predictive ability.

Method

Procedure and sample

Participants were recruited by invitation emails distributed by the Norwegian Psychological Association to half of their members (Sample 1, $n = 3,654$) and by the Norwegian Nurses Organization's sub-organization for nurses in mental health and substance abuse, to all of their members (Sample 2, $n = 1,436$). In addition, the survey was announced on the internet sites of these organizations. The invitation email contained information about the study, as well as a web link providing access to the survey. Completion of the survey was accepted as a consent to participate in the survey. The online SurveyMonkey software was used to collect data during May-July 2014 for Sample 1, and during February-March 2015 for sample 2. One and two reminders were sent to Samples 2 and 1, respectively. The two samples had the opportunity to participate in random drawings for one iPad mini and two psychology or nursing handbooks, respectively, as incentives for participation.

A total of 734 psychologists and psychology students (20.1 % response rate for sample 1) and 360 nurses (25.1 %) for sample 2) completed the survey ($N = 1094$). The survey included an adapted version of the Evidence-based practice attitude scale-50 (EBPAS-50) where all items were rephrased to ask for attitudes towards ROM. Subjects not completing any of the 50 items from the EBPAS-50 ROM version were excluded, as well as those with

missing data for whole subscales, >1 item on 3-item scale or >2 items on 4 item scale (n = 300). Thus, the final sample included data from 794 respondents. Students and providers not working as clinicians were excluded from the current analyses, given our focus on practitioners as end-users in clinical service settings (n = 662).

Measures and assessment

Conceptualization. We specified the instructions of the rephrased EBPAS-50 instrument measuring attitudes to ROM as; “The following questions concerns your attitudes to systematically using routine outcome measures, to get feedback on patient’s problems and change throughout the course of treatment. Routine outcome measures refer to standardized instruments assessing mental health status, in which health personnel or patients, report current status on common mental health issues. The instruments can be administered either on paper or through web- or software support systems”.

Demographic. The demographic variables included gender, age, highest level of education, profession, number of years worked in substance abuse and/or mental health service and working as a clinician (yes/no).

Current use of standardized instruments. Clinician’s current use of standardized instruments as means of treatment planning and evaluation included the following questions: “How often do you use standardized tests and measurements when planning your clinical work?”, “How often do you use standardized questionnaires as part of monitoring treatment response?” and “How often do you use standardized questionnaires as part of evaluating treatment effect?” Responses were given on a 5-point Likert scale ranging from «very seldom/never» to «very often/always».

Attitudes to ROM. Attitudes to ROM were measured with a rephrased version of the *The Evidence-based Practice Attitude Scale-50 (EBPAS-50)* (Aarons, 2004; Aarons et al., 2012), adapted and translated to Norwegian for the present study. The original Evidence-

based Practice Attitude Scale-50 assesses mental health and social service provider's attitudes towards adopting evidence-based practices (Aarons, 2004; Aarons et al., 2012). For the present study, the questions were edited and framed to ask about attitudes towards adopting ROM. The 50 items are grouped into 12 subscales (the names of the subscales are provided in italics): 1) the likelihood of adopting ROM given *requirements* to do so by supervisor, agency or state, 2) the intuitive *appeal* of adopting ROM, 3) *openness* to new practices, 4) the perceived *divergence* of providers' usual practice from research-based or academically developed interventions, 5) *limitations* of outcome measures and their inability to address client needs, 6) ROM *fit* with the values and needs of both client and clinician, 7) negative perceptions of *monitoring*, 8) *balance* between perceptions of clinical skills and science, 9) time and administrative *burden* of learning ROM, 10) *job security* related to using and learning ROM, 11) perceived *organizational support* for adoption, and 12) positive perceptions of receiving *feedback*. Responses to each item are given on a 5-point Likert scale (from 0 indicating "not at all" to 4 indicating "to a very great extent"). To reduce response biases, 15 items belonging to five subscales (divergence, limitations, monitoring, balance and burden) are negatively framed and are reverse-scored before computing the total score. The total score represents a respondent's global attitude towards adopting ROM, with a higher total score indicating a more positive global attitude.

Statistical analyses

Confirmatory factor analyses (CFA) for item reduction evaluations were conducted in Mplus v8.0. The model specification was based on the original subscales of the EBPAS-50. Subscales rephrased to ask directly for attitudes towards ROM were retained (requirements, appeal, limitations, fit, burden, job security, organizational support). Three subscales that were not edited to focus on ROM for the present survey were excluded from further analysis as their item content was considered outside the scope of the present study. These included

the openness subscale, asking for attitudes to adopt research based therapies or interventions more generally; the divergence subscale, with a focus on manualized therapies and academically developed interventions in relations to one's usual practice; and the balance subscale, with its focus on clinical experience and competence in relation to science. Based on perceived relevance for implementation of ROM, also the subscales monitoring and feedback were retained, although the wording did not ask directly about ROM. The Norwegian sample was split using the first sample to identify a short ROM version ($n = 333$), and the second sample to validate its factor structure ($n = 329$). The parameters were estimated with the full information maximum likelihood procedure (FIML). Robust standard errors (MLR) were requested in order to accommodate non-normal item distributions. To assess model fit, the following indices were used: χ^2 , root mean square error of approximation (RMSEA), standardized root mean error (SRMR) and comparative fit indices (CFI). In accordance with Hu and Bentler's cutoff recommendations (Hu & Bentler, 1999), RMSEA values close to .06, SRMR close to .08 and CFI close to 0.95 indicate acceptable model fit. Building upon our previous work developing the shortened EBPAS-36 (Rye et al., 2017), subscales containing four or more items were shortened based on the combined evaluation of the following criteria: 1) retain items with the highest factor loadings; 2) evaluations of modification indices; 3) items being conceptually similar or adding unique information. Correlational analysis and regression analysis were conducted in SPSS v25. In order to allow analysis on a complete dataset, missing EBPAS-ROM-50 ROM version items were imputed using the Expectation Maximization (EM) method. Values were imputed separately for set of items belonging to each subscale, following the exclusion of respondents with missing on <1 on 3 item scales and <2 on 4-7 item scales as described in the Procedure and sample section. Bivariate associations were calculated as Pearson correlation coefficients. Regression models were built to examine attitudinal domains' predictive value on clinicians reported use of standardized

instruments as means of treatment planning and evaluation. Data were checked for influential cases according to Cook's distance criteria, with no values with Cook's distance greater than 1. As prior research has found differences in attitudes to implementing new practices (including ROM) based on demographic characteristics such as gender, age and years of experience (Aarons et al., 2012; Hatfield & Ogles, 2004; Okamura, Hee, Jackson, & Nakamura, 2018), the regression models adjusted for these variables. In the first model, regression analysis were run separately for each subscale adjusted for the demographic variables to assess the predictive value of each subscale without adjusting for the other subscales. In the second model, all subscales were entered together with the demographic variables, to assess the predictive value of each subscale when adjusted also for the other subscales. In the third model, the total scale score representing global attitudes to adopting ROM was entered, together with the covariates gender, age and years of experience.

Results

Samples

Descriptive data of the two samples are given in Table 1. The majority of participants were women. Nurses were older than psychologists, and held more years of clinical experience.

Insert Table 1

Acceptability

Among the 1047 respondents, 73 % had complete data on all EBPAS-50 ROM items. Of respondents that provided answers to the EBPAS-50 ROM items, no single item was left open by more than 2.7 %, with item 42 and 44 omitted most frequently.

Item reduction

Based on the reduction criteria presented in the statistical analyses section with the goal of having a brief and reliable measure, one item in each of the subscales having four

items (appeal, monitoring, burden) and four items in each of the subscales with seven items (limitations, fit) were removed. The final EBPAS-ROM version containing 27 items is presented in Table 2.

Insert Table 2

Item 9 from the appeal subscale (“intuitively appealing”) was removed due to having the lowest factor loading and content overlap with the other items in the subscale. In the limitations subscale, the two lowest loading items were removed. In addition, item 24 (“develop a strong working alliance”) was removed due to content overlap with item 23 (“truly connecting with your clients”), while item 27 (“Families with multiple problems”) was removed due to content overlap with item 26 (“Clients with multiple problems”). In the fit subscale, one item was removed due to having the lowest factor loading.

Item 19 (“had a say in which outcome measure”) was removed despite having a high factor loading due to content overlap with, and being less universal than, item 20 (“had a say in how to use”). Item 22 (“Fit with your treatment philosophy”) was removed due to content overlap and a lower factor loading than item 21 (“Fit with your clinical approach”). Special attention was given to item 16 (“clients wanted it”) and item 17 (“knew more about how your client liked it”), as their content is in line with the underlying construct of the scale, but the items had quite similar factor loadings and content. A consensus was reached to retain item 16, as the item was evaluated to be more readable than item 17. Item 33 from the monitoring subscale (“I do not need to be monitored”) was removed despite having a high factor loading, due to content overlap and not referring to one’s work situation as the other items. Finally, item 39 from the burden subscale (“Can’t meet other obligations”) was removed due to having the lowest factor loading. The instrument and its scoring instructions can be found in Additional files 1-3 (validated in Norwegian language and including English wording).

Subscale correlations and internal consistency

The correlation coefficients (Pearson r) between the 9 EBPAS-ROM subscales are presented in Table 3. The highest correlations were between the appeal and fit subscale ($r = .58$), the job security and organizational support subscale ($r = .43$), the limitations and burden subscale ($r = .40$) and the appeal and organizational support subscale ($r = .39$), all in expected directions. The internal consistency of the EBPAS-ROM is presented in Table 3. The total scale Cronbach's alpha (α) was good (.85), and subscales α ranged from adequate to excellent (.70 to .93).

Insert Table 3

Confirmatory factor analyses

Confirmatory factor analyses modelling the subscale structure of the EBPAS-ROM was performed. The absolute model fit was significant ($\chi^2 = 552.52$, $p < .001$). However, model fit was adequate in terms of low misspecification (RMSEA = .053, 90 % C.I. [0.046, 0.059]; SRMR = .06), and good with regard to incremental fit (CFI = .93, TLI = .92). The standardized factor loadings ranged from .42 to .98 and were statistically significant (all p -levels $< .001$).

Concurrent validity of EBPAS-ROM

Regression analyses with reported utilization of standardized outcome measures as dependent variable were performed to investigate the concurrent validity of EBPAS-ROM. The results of the regression analyses are presented in Table 4. The results from model 1, where the demographic variables were entered together with each EBPAS-ROM subscale separately, showed that five of the subscales (requirements, appeal, limitations, organizational support and feedback) significantly predicted all dependent variables when adjusted for demographic variables; use of standardized instruments for both treatment planning, evaluation of ongoing therapy and evaluation of effect of therapy. Here, higher score on the requirement, appeal, organizational support and feedback subscale predicted more use of

standardized instruments, while higher score on limitations predicted less use of standardized instruments as means of treatment planning, ongoing evaluation and evaluation of effect. In addition, the monitoring subscale predicted use of standardized instruments for treatment planning and evaluation of effect, with higher score predicting less use for the given purposes. Furthermore, higher score on the job security subscale predicted more use of standardized instruments for evaluation of ongoing therapy and effect of therapy. Finally, in the first model, a higher score on the burden subscale predicted less use of standardized instruments for evaluation of treatment effect.

The result from model 2, where all EBPAS-ROM subscales and the demographic variables were entered simultaneously, showed that the limitations subscale predicted use of standardized instruments for all given purposes, when adjusted for the other subscales and the demographic variables. Here, a higher limitation score predicted less use of standardized instruments both for treatment planning, evaluation of ongoing therapy and evaluation of treatment effect. In addition, a higher score on the organizational support subscale predicted more use of standardized instruments as means of evaluation of ongoing therapy and evaluation of treatment effect when adjusted for the other subscales and demographic variables, while a higher score on the job security subscale predicted more use of standardized instruments for evaluation of treatment effect. Finally in model 2, a higher score on the fit subscale predicted less use of standardized instruments for treatment planning, while a higher score on the burden subscale predicted more use for purpose of treatment planning.

In model 3, a higher score on the total scale representing respondent global attitudes to adopt ROM significantly predicted all dependent variables when adjusted for demographic variables; use of standardized instruments both for treatment planning, evaluation of ongoing therapy and evaluation of effect of therapy.

Regarding the demographic predictors, both gender, age and years of experience significantly predicted treatment planning in model 1. Here, females reported more use of standardized instruments for treatment planning than males, older respondents reported less use than the younger, and the more experienced reported less use than the less experienced. In model 2 and 3, only years of experience significantly predicted treatment planning, with more experienced clinicians reporting less use of standardized instruments than the less experienced.

Insert Table 4

Discussion

The slow implementation rate of ROM implies that more knowledge is needed of important implementation factors, including mental health care providers' attitudes to ROM and how they are to be measured. This article presents the EBPAS-ROM instrument measuring provider attitudes to the use of ROM, adapted from the well-known and previously validated EBPAS-50 and EBPAS-36 instruments assessing providers' attitudes to adopt new practices (Aarons, 2004; Aarons et al., 2012; Rye et al., 2017). We also investigated how ROM attitudinal domains predict clinicians reported use of standardized instruments for treatment planning and evaluation. The EBPAS-ROM measures 9 domains corresponding to 9 out of the 12 original subscales from the EBPAS-50 and EBPAS-36. Internal consistency of the subscales was adequate to excellent. Compared with the EBPAS-50 subscales, most subscales of the EBPAS-ROM had slightly lower internal consistencies, which can occur when the number of items per subscale is reduced (Rye et al., 2017). Taken together, the instrument is considered still to be broad in scope and have a low burden of administration. Further, it is linked to both theory and practice as it is adapted from well-known instruments developed from implementation theories and consultations with mental health care providers (Aarons, 2004; Aarons et al., 2012; Rye et al., 2017), and psychometrically strong, - all

important aspects of being a pragmatic measure (see Glasgow & Riley, 2013; Lewis et al., 2015; Rye et al., 2017). All EBPAS-ROM subscales, as well as the total scale, had concurrent value for the respondents' reported use of standardized instruments for treatment planning and evaluation, either independently after adjusted for demographic variables (model 1 and 3), or when adjusted also for the other subscales (model 2).

Specifically, the limitations subscale measuring perceived limitations of the use of ROM in light of being too narrowly focused, not being suitable for patients with multiple problems and hindering the connection between therapist and patient, predicted less use of standardized instruments for treatment planning, ongoing evaluation of treatment and evaluation of effect, in both models. Although mean score of the scale items suggest most respondent didn't score high on perceived limitations; revealing, understanding and dealing with limitations experienced by clinicians as end-users is still important to overcome implementation obstacles, as discussed also by Miller et al., (2015). Attention to perceived limitations of ROM is important, particularly in light of low implementation rate and also literature suggesting skepticism about clinical utility among clinicians (Boswell et al., 2015). This implies both a challenge on developing practice-near and relevant outcome measures, as well as a proper understanding and openness of how ROM measures are to be used in clinical practice, as part of a broader context of assessment, evaluation and monitoring of treatment response.

Next, the experience of more organizational support, such as training, ongoing support and receiving educational credits, predicted both more reported use of standardized instruments for ongoing evaluation of treatment and marginally with evaluation of treatment effect in model 2. Also this is in line with previous findings by for instance Sharples et al., (2017) describing the value of training and ongoing support as important facilitators of implementing ROM. While the importance of training and support during an implementation

process is becoming universally recognized, explicit schooling during the education and clinical practice of students might be a strategy that can be evaluated further in future studies, and may facilitate future clinicians' competent use of ROM (Overington et al., 2015). This as application of ROM can be seen as tapping into several clinical skills, including assessment skills, technique learning, communicational- and alliance skills (Overington et al., 2015).

Taken together, these findings concerning perceived limitations of ROM and the value of organizational support can be seen reflecting distinct needs of providers, representing on one hand clinical utility and professional concern, and on the other hand the more administrative and practical needs. This distinction has also been discussed by Boyce et al. (2014) and is considered important for implementation and educational efforts to be aware of since, as Boyce also discusses, these concerns may endure after the provision of training and administrative support have been conducted.

Further in model 2, we also see that higher score on the job security subscale predicts more use of standardized instruments for evaluation of treatment effect, perhaps implying this knowledge to be considered a mark of important competence and quality of therapeutically work. Finally, both the fit subscale and the burden subscale predicted reported use of standardized instruments for treatment planning, but in unexpected directions. Here, the fit subscale addressing fit with ROM and one's clinical approach and knowing that your clients wanted to use ROM, co-occurred with *lesser* use of ROM, - while a higher score on the burden subscale implying concern about paperwork, administrative burden and little time to learn new tasks *more* use of standardized instrument for treatment planning. This finding held when results were adjusted for the other subscales in the model. While it is beyond the scope of this article to be able to describe reasons for these findings, it is possible that use of standardized instruments as means of planning ones clinical work is considered a helpful element with complex clinical cases or in a busy, highly scheduled work environment in line

with for instance Sharples et al. (2017), describing ROM as a potential valuable tool in busy clinics where time for reflection is limited. It could of course also be the other way around, that the finding picks up on the use of outcome measures for some people being associated with the experience of lack of time, and administrative burden (see for instance Boswell et al., 2015; Norman et al., 2014). These findings might also be seen in light of the findings of Gleacher et al., (2016), where a clinic with higher implementation success actually reported a higher ratio of barriers to facilitators compared to a clinic with less successful implementation. This could reflect an increased work effort associated with integrating ROM as a new practice and the experience of “implementation fatigue” when new work requirements are introduced in a short period of time (Chung, Choi, & Du, 2017; Gleacher et al., 2016). For the fit subscale, potential causal mechanisms might be more subtle, but one conceivable understanding might have to do with the feeling of more autonomy or individual decisions about “intention to use” leading clinicians not to use such instruments in cases where it is not experienced appropriate.

For the last model, more positive global attitudes to adopting ROM predicted more use of standardized instruments for all given purposes, when adjusted for the demographic variables, implying that global attitudes of clinicians are an important factor to take into count when planning implementation of ROM.

Although the demographic predictors were not of our primary interest, it is worth noting that in all 3 models, clinicians with more years of clinical experience reported less use of standardized instruments for treatment planning. Although not directly comparable, this finding is interesting compared to other findings showing younger or earlier career clinicians to report more use of ROM than older clinicians (Hatfield & Ogles, 2004). Also, in model 1, females reported more use of standardized instruments for treatment planning than males and older respondents reported less use than the younger. More research also on the therapeutic

demographic variables for implementation of ROM is considered important for future research.

Strengths and limitations

Using a quantitative approach with a heterogeneous group of clinicians, this study expands and complements other studies which have used a qualitative approach with fewer respondents and on groups of clinicians being part of implementation initiatives or having training in ROM (Norman et al., 2014; Sharples et al., 2017). While this is considered a strength of this study, it also brings about limitations, for instance concerning losing nuances in respondents' answers, and having less control over the background and prior experience of respondents. This can be considered methodologically expected, and future research should use a variety of research approaches to explore these concepts further. Further, the concept of ROM includes many components, concerning for instance both the administration of scales to patients and the feedback of patient status and progress back to the therapist (Wampold, 2015), which might have affected how different participants interpreted the questions asked. Three subscales from the original EBPAS- 50 and 36 were left out of analysis, as they were not rephrased to focus on ROM for the survey study and perceived out of scope of the present study. In doing so, one might argue that important aspects relevant for the adoption of ROM were lost. Future studies should examine how these other subscales might also be tailored for ROM. Other limitations concerning the present study includes that multiple testing might have increased risk of type 1 errors, as well as the low response rate, being a usual problem in web-based surveys (see Kaiser et al., 2018; Van Horn, Green, & Martinussen, 2009). However, only three regression analyses were conducted thus allaying some concerns about type 1 errors. Also, since applying regressions analyses, the large sample size, and that we had two separate samples mitigates some concerns regarding the response rates (Stormark, Heiervang, Heimann, Lundervold, & Gillberg, 2008).

Conclusion

The EBPAS-ROM has good psychometric properties. It is considered to live up to the intentions of its ancestors, the EBPAS-50 and EBPAS-36, to be a short and pragmatic instrument that can be used for applied and research purposes both for understanding of implementation factors and planning of implementation strategies. This adaptation of a prior scale is consistent with the development of new implementation measures that can be tailored to focus on specific practices that are being implemented in a given health setting (Moullin, Ehrhart, Torres, & Aarons, 2018). The present study provides insight into how specific attitudes toward ROM represented by different subscales differentially co-occurred with different aspects of reported use of standardized instruments. This study also demonstrated that having more positive global attitudes to adopt ROM significantly predicts more use of standardized instruments for treatment planning and evaluation. These findings suggest that attitudes of clinicians can be an important factor to consider and address when planning implementation of ROM.

Declarations

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Availability of data and materials

The data analysed for this manuscript can be made available from the corresponding author on reasonable request.

Compliance with ethical standards

Conflict of interest

The authors declare no other competing interests.

Informed consent

Respondents provided informed consent according to recommendations of the Norwegian data protection authority for the project.

Ethical approval

Approval from the Norwegian Regional Committees for Medical and Health Research Ethics (REC) was not needed as data were anonymous and this study is outside of activities that require approval from the Norwegian REC.

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Table 1
Demographic characteristics

Characteristics	Psychologists (n = 507)		Nurses (n = 155)	
Gender				
Female	327	(64.5)	128	(82.6)
Male	159	(31.4)	23	(14.8)
Missing	21	(4.1)	4	(2.6)
Age				
≤ 30 years	64	(12.6)	5	(3.2)
31-40 years	190	(37.5)	20	(12.9)
41-50 years	118	(23.3)	37	(23.9)
51-60 years	78	(15.4)	61	(39.4)
≥ 61 years	47	(9.3)	30	(19.4)
Missing	10	(2.0)	2	(1.3)
Tenure in substance abuse and mental health (years)	10.1	(9.4)	16.8	(9.8)
Highest Education - Clinical Psychologists ¹				
Both Ph.D. and clinical specialist degrees	19	(3.7)	n/a	n/a
Ph.D.	11	(2.2)	n/a	n/a
Clinical specialist degree	236	(46.6)	n/a	n/a
Other continued education	5	(1.0)	n/a	n/a
Highest Education - Nurses ²				
Ph.D.	n/a	n/a	1	(0.6)
Master's degree	n/a	n/a	19	(12.3)
Other continued education	n/a	n/a	128	(82.6)

Note. Data presented as n (%) or mean (SD), if appropriate. n/a = categories not applicable. ¹After an initial cand.psychol. degree. ²After an initial Bachelor degree.

Table 2

EBPAS-ROM items standardized factor loadings, means and standard deviations

Item no. ¹	Subscales and items	Original Factor Loadings	ROMAS Factor Loadings	Mean	SD
Scale 1: Requirements					
12	Agency required	1.01	0.98	2.55	1.22
11	Supervisor required	0.92	0.96	2.50	1.26
13	State required	0.74	0.82	2.66	1.28
Scale 2: Appeal					
15	Enough training	0.78	0.83	3.11	0.95
14	Colleagues happy with it	0.76	0.68	2.85	0.97
10	Makes sense	0.67	0.53	3.22	0.84
9	<i>Inuitively appealing</i>	<i>0.57</i>	-	<i>2.86</i>	<i>1.04</i>
Scale 3: Limitations²					
29	Too narrowly focused	0.72	0.79	1.17	1.03
26	Clients with multiple problems	0.83	0.73	.79	1.00
23	Truly connecting with your clients	0.77	0.69	0.67	.91
28	<i>Individualized treatment</i>	<i>0.67</i>	-	<i>1.25</i>	<i>1.11</i>
24	<i>Develop a strong working alliance</i>	<i>0.76</i>	-	<i>0.57</i>	<i>.87</i>
25	<i>Too simplistic</i>	<i>0.67</i>	-	<i>1.30</i>	<i>1.09</i>
27	<i>Families with multiple problems</i>	<i>0.80</i>	-	<i>.71</i>	<i>.94</i>
Scale 4: Fit					
20	Had a say in how I would use	0.83	0.78	3.01	.99
21	Fit with your clinical approach	0.80	0.70	3.12	0.97
16	Clients wanted it	0.68	0.51	3.17	1.00
17	<i>Knew more about how your clients liked it</i>	<i>0.69</i>	-	<i>2.84</i>	<i>1.09</i>
18	<i>Right for your clients</i>	<i>0.67</i>	-	<i>3.43</i>	<i>0.86</i>
19	<i>Had a say in which measure</i>	<i>0.82</i>	-	<i>2.95</i>	<i>1.04</i>
22	<i>Fit with your treatment philosophy</i>	<i>0.73</i>	-	<i>3.10</i>	<i>1.01</i>
Scale 5: Monitoring²					
31	Looking over my shoulder	0.66	0.86	0.86	1.16
30	Prefer to work without oversight	0.66	0.85	.70	1.06
32	Work does not need to be monitored	0.92	0.73	0.85	1.17
33	<i>I do not need to be monitored</i>	<i>0.84</i>	-	<i>1.08</i>	<i>1.25</i>
Scale 6: Burden²					
41	Cause too much paperwork	0.77	0.80	1.32	1.20
40	How to fit ROM in	0.83	0.76	.97	1.11
38	Don't have time to learn anything new	0.46	0.42	.86	1.04
39	<i>Can't meet other obligations</i>	<i>0.44</i>	-	<i>1.27</i>	<i>1.09</i>
Scale 7: Job security					
43	Help me get a new job	0.95	0.91	.74	1.07
44	Make it easier to find work	0.89	0.90	.68	1.00
42	Help me keep my job	0.57	0.62	0.53	0.94
Scale 8: Organizational support					
46	Training provided	0.91	0.89	2.28	1.28
47	Ongoing support provided	0.88	0.87	1.96	1.27
45	Continuing education credits provided	0.47	0.53	1.11	1.23
Scale 9: Feedback					
49	Feedback helps me to be better	0.97	0.87	3.56	0.74
48	Enjoy feedback on performance	0.79	0.83	3.34	.90
50	Supervision helps me to be better	0.67	0.60	3.52	.81

Note. All factor loadings are standardized. Italicized items are items removed. ¹Item number from original EBPAS-50. ²Reversed scale

Table 3

EBPAS-ROM subscale intercorrelations and internal consistency

Subscales	1.	2.	3.	4.	5.	6.	7.	8.	9.	α^1
1. Requirements	-									.93
2. Appeal	.36**	-								.74
3. Limitations	-.19**	-.32**	-							.78
4. Fit	.20**	.58**	-.10**	-						.74
5. Monitoring	-.20**	-.20**	.33**	-.05	-					.84
6. Burden	-.10**	-.11**	.40**	.03	.32**	-				.70
7. Job security	.07	.06	-.06	.07	.06	.06	-			.84
8. Organizational support	.26**	.39**	-.25**	.25**	-.08*	-.02	.43**	-		.79
9. Feedback	.20**	.35**	-.17**	.24**	-.24*	-.12**	.04	.31**	-	.82

* indicates significance at the $p < .05$ level, ** indicates significance at the $p < .001$ level, $^1\alpha$ = Cronbach's alpha

Table 4.

Regression with EBPAS-ROM predicting use of standardized instruments

	Treatment planning			Evaluation			Effect		
	B ^a	95 % C.I	p	B	95 % C.I	p	B	95 % C.I	p
Model 1 ¹									
Gender	-.24	-.45, -.03	.027	-.05	-.28, .18	.664	.11	-.12, .35	.333
Age	-.19	-.27, -.12	.001	-.04	-.13, .14	.314	.03	-.06, .11	.551
Years experience	-.03	-.04, -.02	.001	-.00	-.01, .01	.572	.24	-.01, .01	.769
Requirements	.16	.08, .24	.001	.14	.05, .23	.003	.14	.04, .23	.004
Appeal	.25	.13, .38	.001	.21	.07, .35	.004	.28	.14, .42	.001
Limitations	-.39	-.50, -.27	.001	-.29	-.41, -.17	.001	-.38	-.51, -.26	.001
Fit	.00	-.11, .12	.960	.03	-.10, .16	.621	.07	-.06, .21	.290
Monitoring	-.20	-.30, -.10	.001	-.10	-.21, .01	.087	-.16	-.27, -.04	.009
Burden	-.06	-.17, .05	.273	-.12	-.24, .00	.051	-.23	-.35, -.11	.001
Job security	.04	-.07, .15	.480	.15	.03, .27	.015	.23	.10, .35	.001
Organizational support	.15	.07, .24	.001	.21	.12, .31	.001	.24	.15, .34	.001
Feedback	.19	.05, .34	.010	.18	.02, .35	.027	.17	.01, .34	.043
Model 2 ²									
Gender	-.12	-.33, .08	.242	-.02	-.25, .22	.895	.15	-.08, .39	.205
Age	-.07	-.18, .05	.268	-.06	-.19, .08	.403	.03	-.10, .17	.620
Years experience	-.02	-.03, -.00	.026	.01	-.01, .02	.495	.00	-.02, .02	.910
Requirements	.08	-.01, .17	.067	.07	-.03, .17	.170	.04	-.06, .14	.460
Appeal	.15	-.03, .32	.096	.07	-.13, -.26	.497	.12	-.07, .32	.215
Limitations	-.35	-.48, -.22	.001	-.21	-.35, -.06	.006	-.24	-.39, -.09	.002
Fit	-.16	-.30, -.02	.023	-.10	-.25, .06	.233	-.07	-.23, .09	.395
Monitoring	-.09	-.20, .02	.113	.01	-.11, .13	.878	-.02	-.15, .10	.723
Burden	.14	.03, .26	.017	-.02	-.15, .11	.763	-.12	-.25, .01	.079
Job security	-.02	-.14, .10	.755	.07	.01, .24	.327	.15	.01, .29	.030
Organizational support	.05	-.05, .16	.346	.13	.01, .24	.038	.12	.00, .24	.050
Feedback	.06	-.10, .21	.469	.05	-.13, .23	.604	-.02	-.20, .16	.828
Model 3									
Gender	-.17	-.37, .04	.110	-.01	-.23, .22	.967	.19	-.04, .42	.108
Age	-.07	-.19, .04	.212	-.05	-.18, .08	.437	.05	-.08, .19	.431
Years experience	-.02	-.03, -.00	.013	.00	-.01, .02	.694	-.00	-.02, .02	.908
EBPAS-ROM total scale	.57	.37, .77	.001	.57	.35, .79	.001	.75	.53, .98	.001

Note. ¹Model 1: EBPAS-ROM subscales entered independently adjusted for demographic variables, ²Model 2: EBPAS-ROM subscales adjusted for each other and demographic variables, ³Model 3: EBPAS-ROM total scale adjusted for demographic variables

Appendix I

The Evidence-Based Practice Attitude Scale-50 (EBPAS-50), norsk oversettelse

EBPAS-50 (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale-50 Item Version

Reference:

Aarons, G. A., Cafri, G., Lugo, L., Sawitzky, A. (2012). Expanding the domains of attitudes towards evidence-based practice. The Evidence Based Practice Attitude Scale - 50. Administration and Policy in Mental Health, 39, 331-340.

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De følgende spørsmål omhandler din innstilling til å ta i bruk nye terapier, intervensjoner eller behandlinger. Manualbasert terapi refererer til enhver intervensjon som har spesifikke retningslinjer og/eller komponenter som er beskrevet i en manual og/eller som skal følges på en strukturert/forutbestemt måte. Evidensbaserte metoder refererer til enhver intervensjon som støttes av empirisk forskning.

For spørsmål 1-8: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen:

0	1	2	3	4
Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig
1. Jeg liker å ta i bruk nye terapier/intervensjoner for å hjelpe pasientene mine.....	0	1	2	3 4
2. Jeg er villig til å prøve nye terapier/intervensjoner selv om jeg da må følge en behandlingsmanual.....	0	1	2 3 4	
3. Jeg vet bedre enn forskere hvordan jeg skal ta meg av pasientene mine.....	0	1	2 3 4	
4. Jeg er villig til å bruke nye og forskjellige terapier/intervensjoner som er utviklet av forskere.....	0	1	2 3 4	
5. Forskningsbaserte behandlinger/intervensjoner er ikke klinisk nyttige.....	0	1	2 3 4	
6. Klinisk erfaring er viktigere enn bruk av manualbasert terapi/behandling.....	0	1	2 3 4	
7. Jeg ønsker ikke å bruke manualbaserte terapier/intervensjoner.....	0	1	2 3 4	
8. Jeg vil prøve en ny terapi/intervensjon selv om den er svært forskjellig fra hva jeg er vant til å gjøre.....	0	1	2 3 4	

For spørsmål 9-22: Hvis jeg fikk opplæring i en terapi eller intervensjon som var ny for meg, ville jeg tatt den i bruk gitt at:

9. den var intuitivt tiltalende..	0	1	2 3 4
10. den virket fornuftig.....	0	1	2 3 4
11. det ble pålagt av min leder	0	1	2 3 4
12. det ble pålagt av min arbeidsplass	0	1	2 3 4
13. det ble pålagt av myndighetene	0	1	2 3 4

14. den ble brukt av kollegaer som var fornøyd med den 0 1 2 3 4
 15. jeg følte jeg hadde nok opplæring til å bruke den riktig 0 1 2 3 4

Hvis jeg fikk opplæring i en terapi eller intervensjon som var ny for meg, ville jeg tatt den i bruk gitt at:

16. pasientene mine ønsket det 0 1 2 3 4
 17. jeg visste mer om hvordan pasientene mine likte den..... 0 1 2 3 4
 18. jeg visste den var velegnet for pasientene 0 1 2 3 4
 19. jeg hadde innflytelse på hvilken evidensbasert metode som skulle benyttes..... 0 1 2 3 4
 20. jeg hadde innflytelse på hvordan jeg skulle bruke den evidensbaserte metoden..... 0 1 2 3 4
 21. den passet med min kliniske tilnærming..... 0 1 2 3 4
 22. den passet med min behandlingsfilosofi..... 0 1 2 3 4

For spørsmål 23-50: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen:

	0	1	2	3	4
	Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig
23. Evidensbaserte metoder er til hinder for å etablere kontakt med pasientene.....	0	1	2	3	4
24. Evidensbaserte metoder gjør det vanskeligere å etablere en sterk behandlingsallianse.....	0	1	2	3	4
25. Evidensbaserte metoder er for forenklede.....	0	1	2	3	4
26. Evidensbaserte metoder er ikke nyttige for pasienter med sammensatte problem	0	1	2	3	4
27. Evidensbaserte metoder er ikke nyttige for familier med sammensatte problem	0	1	2	3	4
28. Evidensbaserte metoder er ikke tilpasset den enkelte pasient.....	0	1	2	3	4
29. Evidensbaserte metoder har for snevert fokus	0	1	2	3	4
30. Jeg foretrekker å jobbe på egen hånd uten tilsyn.....	0	1	2	3	4
31. Jeg ønsker ikke at noen skal kikke over skulderen min mens jeg gjør jobben min.....	0	1	2	3	4
32. Det er unødvendig å holde øye med arbeidet mitt.....	0	1	2	3	4
33. Jeg behøver ikke å bli holdt øye med.....	0	1	2	3	4
34. Jeg er fornøyd med mine terapeutiske ferdigheter.....	0	1	2	3	4
35. Et positivt utfall i terapi er følge av kunst mer enn av vitenskap	0	1	2	3	4

Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen:

	0	1	2	3	4
	Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig
36. Terapi er både kunst og vitenskap.....	0	1	2	3	4
37. Min terapeutiske kompetanse er viktigere enn en bestemt tilnærming.....	0	1	2	3	4
38. Jeg har ikke tid til å lære noe nytt	0	1	2	3	4
39. Jeg klarer ikke å oppfylle alle mine forpliktelser.....	0	1	2	3	4
40. Jeg vet ikke hvordan jeg skal få passet inn bruken av evidensbaserte metoder i mine administrative oppgaver.....	0	1	2	3	4
41. Evidensbaserte metoder vil medføre for mye papirarbeid.....	0	1	2	3	4
42. Å lære en evidensbasert metode vil hjelpe meg å beholde jobben min.....	0	1	2	3	4
43. Å lære en evidensbasert metode vil hjelpe meg med å få en ny jobb.....	0	1	2	3	4
44. Å lære en evidensbasert metode vil gjøre det lettere å finne arbeid	0	1	2	3	4
45. Jeg vil lære en evidensbasert metode hvis det ble godkjent som videreutdanning	0	1	2	3	4
46. Jeg vil lære en evidensbasert metode hvis det ble gitt opplæring.....	0	1	2	3	4
47. Jeg vil lære en evidensbasert metode hvis det ble gitt kontinuerlig oppfølging.....	0	1	2	3	4
48. Jeg liker å få tilbakemelding på jobben jeg gjør	0	1	2	3	4
49. Å motta tilbakemelding hjelper meg å bli en bedre terapeut.....	0	1	2	3	4
50. Å motta veiledning hjelper meg til å bli en bedre terapeut	0	1	2	3	4

Appendix II

The Evidence-Based Practice Attitude Scale-36 (EBPAS-36), English version

Evidence-Based Practice Attitude Scale (EBPAS)© 36

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The EBPAS assesses mental health provider attitudes toward adoption of innovation and evidence-based practices (EBPs) in mental health and social service settings. Items are presented on a 5-point Likert scale ranging from 0 “Not at All” to 4 “To a Very Great Extent”.

Reference

Rye, M., Torres, E. M., Friberg, O., Skre, I., & Aarons, G. A. (2017). The Evidence-based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44). doi: 10.1186/s13012-017-0573-0.

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Evidence-Based Practice Attitude Scale (EBPAS)© 36

The following questions ask about your feelings about using new types of therapy, interventions, or treatments. Manualized therapy refers to any intervention that has specific guidelines and/or components that are outlined in a manual and/or that are to be followed in a structured/ predetermined way.

Please indicate the extent to which you agree with each item using the below scale.

0	1	2	3	4
Not at all	Slight extent	Moderate extent	Great extent	Very great extent

For questions 1-6: Circle the number indicating the extent to which you agree with each item using the following scale:

- 1. I like to use new types of therapy/interventions to help my clients0 1 2 3 4
- 2. I am willing to try new types of therapy/interventions even if I have to follow a treatment manual.....0 1 2 3 4
- 3. I am willing to use new and different types of therapy/interventions developed by researchers.....0 1 2 3 4
- 4. Research based treatments/interventions are not clinically useful.....0 1 2 3 4
- 5. Clinical experience is more important than using manualized therapy/treatment.....0 1 2 3 4
- 6. I would not use manualized therapy/interventions.....0 1 2 3 4

For questions 6-12: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

- 7. it “made sense” to you?.....0 1 2 3 4
- 8. it was required by your supervisor?0 1 2 3 4
- 9. it was required by your agency?.....0 1 2 3 4
- 10. it was required by your state?0 1 2 3 4
- 11. it was being used by colleagues who were happy with it?.....0 1 2 3 4
- 12. you felt you had enough training to use it correctly?.....0 1 2 3 4

0	1	2	3	4
Not at all	Slight extent	Moderate extent	Great extent	Very great extent

For questions 13-15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

- 13. you knew it was right for your clients..... 0 1 2 3 4
- 14. you had a say in how you would use the evidence-based practice..... 0 1 2 3 4
- 15. it fit with your clinical approach0 1 2 3 4

For questions 16-36: Circle the number indicating the extent to which you agree with each item using the following scale:

- 16. Evidence-based practice is not useful for clients with multiple problems 0 1 2 3 4
- 17. Evidence-based practice is not individualized treatment0 1 2 3 4
- 18. Evidence-based practice is too narrowly focused0 1 2 3 4
- 19. I prefer to work on my own without oversight..... 0 1 2 3 4
- 20. I do not want anyone looking over my shoulder while I provide services..... 0 1 2 3 4
- 21. My work does not need to be monitored..... 0 1 2 3 4
- 22. A positive outcome in therapy is an art more than a science0 1 2 3 4
- 23. Therapy is both an art and a science 0 1 2 3 4
- 24. My overall competence as a therapist is more important than a particular approach0 1 2 3 4
- 25. I don't have time to learn anything new..... 0 1 2 3 4
- 26. I can't meet my other obligations..... 0 1 2 3 4
- 27. I don't know how to fit evidence-based practice into my administrative work0 1 2 3 4
- 28. Learning an evidence-based practice will help me keep my job..... 0 1 2 3 4
- 29. Learning an evidence-based practice will help me get a new job0 1 2 3 4
- 30. Learning an evidence-based practice will make it easier to find work0 1 2 3 4
- 31. I would learn an evidence-based practice if continuing education credits were provided. 0 1 2 3 4

	0	1	2	3	4
	Not at all	Slight extent	Moderate extent	Great extent	Very great extent
32. I would learn an evidence-based practice if training were provided.....	0	1	2	3	4
33. I would learn an evidence-based practice if ongoing support was provided.....	0	1	2	3	4
34. I enjoy getting feedback on my job performance.....	0	1	2	3	4
35. Getting feedback helps me to be a better therapist/case manager	0	1	2	3	4
36. Getting supervision helps me to be a better therapist/case manager	0	1	2	3	4

Appendix III

The Evidence-Based Practice Attitude Scale-36 (EBPAS-36), Norwegian version

Evidence-Based Practice Attitude Scale (EBPAS)© 36

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Norsk oversettelse

EBPAS måler helsepersonell sin innstilling til å ta i bruk nye terapier, intervensjoner eller behandlinger. Hvert spørsmål besvares på en Likert-skala fra 0 “Helt uenig” til 4 “Helt enig”.

Referanse

Rye, M., Torres, E. M., Friborg, O., Skre, I., & Aarons, G. A. (2017). The Evidence-based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44).

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Evidence-Based Practice Attitude Scale (EBPAS)© 36

De følgende spørsmål omhandler din innstilling til å ta i bruk nye terapier, intervensjoner eller behandlinger. Manualbasert terapi refererer til enhver intervensjon som har spesifikke retningslinjer og/eller komponenter som er beskrevet i en manual og/eller som skal følges på en strukturert/forutbestemt måte. Evidensbaserte metoder refererer til enhver intervensjon som støttes av empirisk forskning.

Vennligst sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av følgende skala:

0	1	2	3	4
Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig

For spørsmål 1-6: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen ovenfor:

1. Jeg liker å bruke nye former for terapi/intervensjoner for å hjelpe mine pasienter..... 0 1 2 3 4
2. Jeg er villig til å prøve nye former for terapi/intervensjoner selv om jeg da må følge en behandlingsmanual..... 0 1 2 3 4
3. Jeg er villig til å bruke nye og forskjellige former for terapi/intervensjoner som er utviklet av forskere..... 0 1 2 3 4
4. Forskningsbaserte behandlingsformer/intervensjoner er ikke klinisk nyttige..... 0 1 2 3 4
5. Klinisk erfaring er viktigere enn bruk av manualbasert terapi/behandling..... 0 1 2 3 4
6. Jeg ville ikke brukt manualbaserte terapier/intervensjoner..... 0 1 2 3 4

For spørsmål 7-15: Hvis du fikk opplæring i en terapi eller intervensjon som var ny for deg, hvor sannsynlig er det at du ville ta den i bruk gitt at:

7. den virket fornuftig?..... 0 1 2 3 4
8. det ble pålagt av din leder?..... 0 1 2 3 4
9. det ble pålagt av din arbeidsplass? 0 1 2 3 4
10. det ble pålagt av myndighetene?..... 0 1 2 3 4
11. den ble brukt av kollegaer som var fornøyd med den?..... 0 1 2 3 4
12. du følte du hadde nok opplæring til å bruke den riktig?..... 0 1 2 3 4
13. du visste den var velegnet for dine pasienter..... 0 1 2 3 4
14. du hadde innflytelse på hvordan du skulle bruke den evidensbaserte metoden..... 0 1 2 3 4
15. den passet med din kliniske tilnærming..... 0 1 2 3 4

Evidence-Based Practice Attitude Scale (EBPAS)© 36

0	1	2	3	4
Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig

For spørsmål 16-36: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen ovenfor:

16. Evidensbaserte metoder er ikke nyttige for pasienter med sammensatte problemer..... 0 1 2 3 4
17. Evidensbaserte metoder er ikke tilpasset den enkelte pasient..... 0 1 2 3 4
18. Evidensbaserte metoder har for snevert fokus 0 1 2 3 4
19. Jeg foretrekker å jobbe på egen hånd uten tilsyn..... 0 1 2 3 4
20. Jeg ønsker ikke at noen kikker over skulderen min mens jeg gjør jobben min..... 0 1 2 3 4
21. Det er unødvendig å holde øye med arbeidet mitt..... 0 1 2 3 4
22. Et positivt utfall i terapi er følge av kunst mer enn en vitenskap 0 1 2 3 4
23. Terapi er både kunst og vitenskap..... 0 1 2 3 4
24. Min terapeutiske kompetanse er viktigere enn en bestemt tilnærming..... 0 1 2 3 4
25. Jeg har ikke tid til å lære noe nytt 0 1 2 3 4
26. Jeg kan ikke oppfylle mine andre plikter..... 0 1 2 3 4
27. Jeg vet ikke hvordan jeg skal få passet inn evidensbaserte metoder i mine administrative oppgaver..... 0 1 2 3 4
28. Å lære en evidensbasert metode vil hjelpe meg å beholde jobben min..... 0 1 2 3 4
29. Å lære en evidensbasert metode vil hjelpe meg med å få en ny jobb..... 0 1 2 3 4
30. Å lære en evidensbasert metode vil gjøre det lettere å finne arbeid 0 1 2 3 4
31. Jeg vil lære en evidensbasert metode hvis det gir godkjente studiepoeng som etter-/ videreutdanning 0 1 2 3 4
32. Jeg ville lære en evidensbasert metode hvis det ble gitt opplæring..... 0 1 2 3 4
33. Jeg ville lære en evidensbasert metode hvis det ble gitt kontinuerlig oppfølging..... 0 1 2 3 4
34. Jeg liker å få tilbakemelding på jobben jeg gjør 0 1 2 3 4
35. Å motta tilbakemelding hjelper meg å bli en bedre terapeut..... 0 1 2 3 4
36. Å motta veiledning hjelper meg til å bli en bedre terapeut 0 1 2 3 4

Appendix IV

The Evidence-Based Practice Attitude Scale-36 (EBPAS-36), English version, scoring instructions

EBPAS-36 (©Gregory A. Aarons, Ph.D.)
Evidence-Based Practice Attitude Scale
Items, Factor Loadings, Chronbach's Alphas, and Scoring

Reference:

Rye, M., Torres, E. M., Friberg, O., Skre, I., & Aarons, G. A. (2017). The Evidence-based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44). doi: 10.1186/s13012-017-0573-0.

Item #	Scale	Factor Loading	Alpha
Scale 1: Requirements			.91
8	Supervisor required	.89	
9	Agency required	.97	
10	State required	.77	
Scale 2: Appeal			.75
7	Makes sense	.61	
11	Colleagues happy with therapy	.71	
12	Enough training	.83	
Scale 3: Openness			.81
2	Will follow a treatment manual	.78	
3	Will try therapy/interventions developed by researchers	.81	
1	Like to use new therapy/interventions	.70	
Scale 4: Divergence			.60
4	Research based treatments/interventions not useful	.59	
6	Would not use manualized therapy/interventions	.67	
5	Clinical experience more important	.47	
Scale 5: Limitations			.90
16	Clients with multiple problems	.79	
17	Not individualized treatment	.92	
18	Too narrowly focused	.89	
Scale 6: Fit			.77
13	Right for your clients	.69	
14	Had a say in how to use the evidence-based practice	.79	
15	Fit with your clinical approach	.73	
Scale 7: Monitoring			.85
19	Work without oversight	.71	
20	Looking over my shoulder	.88	
21	My work does not need to be monitored	.85	

	Scale 8: Balance		.74
22	Positive outcome is an art	.73	
23	Therapy is an art and a science	.59	
24	Overall competence is more important	.76	
	Scale 9: Burden		.76
25	Don't have time to learn anything new	.57	
26	Can't meet other obligations	.81	
27	How to fit evidence-based practice in	.67	
	Scale 10: Job security		.82
28	Help me keep my job	.80	
29	Help me get a new job	.98	
30	Make it easier to find work	.61	
	Scale 11: Organizational Support		.84
31	Continuing education credits provided	.74	
32	Training provided	.86	
33	Ongoing support provided	.82	
	Scale 12: Feedback		.80
34	Enjoy feedback on performance	.69	
35	Feedback helps me to be better	.83	
36	Supervision helps me to be better	.78	
<hr/> EBPAS-36 Total Scale <hr/>			.79

SCORING THE SCALES

The score for each subscale is created by computing a mean score for each set of items that load on a given subscale. For example, items 8, 9, and 10 constitute Requirements subscale. If there is missing data in your data set, computing means may be done allowing for one fewer items than make up the scale.

COMPUTING THE TOTAL SCORE

Only for the total score (not the individual scale scores), items from subscale 4 (Divergence), subscale 5 (Limitations), subscale 7 (Monitoring), subscale 8 (Balance) and subscale 9 (Burden) **must be reverse scored** and the subscale score recomputed. After the reverse scoring is complete, then a mean of the scale scores may be computed to yield the mean score for the total EBPAS-36 Item Score.

You may contact Dr. Aarons by email at: gaarons@ucsd.edu

Appendix V

The Evidence-based Practice Attitude Scale-36 (EBPAS-36), Norwegian version, scoring instructions

**EBPAS-36 (©Gregory A. Aarons,
Ph.D.) Evidence-Based Practice
Attitude Scale
Norsk versjon**

Referanse:

Rye, M., Torres, E. M., Friberg, O., Skre, I., & Aarons, G. A. (2017). The Evidence-based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44). doi: 10.1186/s13012-017-0573-0.

Spørsmål #	Skala	Faktorladning	Alpha
Skala 1: Requirements			.92
8	Pålagt fra leder	.93	
9	Pålagt fra arbeidsplass	1.00	
10	Pålagt fra myndigheter	.79	
Skala 2: Appeal			.61
7	Virket fornuftig	.53	
11	Kollegaer fornøyd	.68	
12	Nok opplæring	.68	
Skala 3: Openness			.76
2	Vil følge en behandlingsmanual	.86	
3	Vil prøve terapier/intervensjoner utviklet av forskere	.68	
1	Liker ta i bruk nye terapier/intervensjoner	.53	
Skala 4: Divergence			.68
4	Forskningsbaserte ikke klinisk nyttige	.61	
6	Ønsker ikke bruke manualiserte terapier/intervensjoner	.76	
5	Klinisk erfaring viktigere	.66	
Skala 5: Limitations			.85
16	Sammensatte problem	.74	
17	Ikke tilpasset pasient	.80	
18	Snevert fokus	.89	
Skala 6: Fit			.62
13	Velegnet for pasient	.54	
14	Hvordan bruke metode	.67	
15	Passet med klinisk tilnærming	.62	
Skala 7: Monitoring			0.84
19	Foretrekke jobbe uten tilsyn	.83	
20	Kikke over skulderen	.83	
21	Holde øye med arbeidet	.75	
Skala 8: Balanse			.64
22	Positivt utfall er kunst	.60	
23	Terapi både kunst og vitenskap	.62	
24	Terapeutisk kompetanse er viktigere	.61	

Spørsmål #	Skala	Faktorladning	Alpha
	Skala 9: Burden		.74
25	Ikke tid lære nytt	.76	
26	Klarer ikke oppfylle forpliktelser	.70	
27	Hvordan passe inn	.61	
	Skala 10: Job security		.86
28	Hjelpe meg beholde jobben	.60	
29	Hjelpe meg få ny jobb	.95	
30	Lettere finne arbeid	.91	
	Skala 11: Organizational support		.84
31	Godkjent videreutdanning	.61	
32	Opplæring	.92	
33	Kontinuerlig oppfølging	.87	
	Skala 12: Feedback		.85
34	Liker tilbakemelding	.84	
35	Tilbakemelding hjelper bli bedre	.96	
36	Veiledning hjelper bli bedre	.72	
	Epbas-36 total skåre		.86

SCORING THE SCALES

The score for each subscale is created by computing a mean score for each set of items that load on a given subscale. For example, items 1, 2, and 3 constitute Requirements subscale. If there is missing data in your data set, computing means may be done allowing for one fewer items than make up the scale.

COMPUTING THE TOTAL SCORE

Only for the total score (not the individual scale scores), items from Divergence, Limitations, Monitoring, Competence and Burden subscales **must be reverse scored** and the subscale score recomputed. After the reverse scoring is complete, then a mean of the scale scores may be computed to yield the mean score for the total EBPAS-36 Item Score.

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Appendix VI

The Evidence-based Practice Attitude Scale – Routine Outcome monitoring (EBPAS-ROM),
Norwegian version

EBPAS-Routine Outcome Monitoring version (EBPAS-ROM)

Innstilling til systematisk tilbakemelding

EBPAS-ROM omhandler din innstilling til å systematisk ta i bruk tilbakemeldingsverktøy for psykisk tilstand, for å få tilbakemeldinger på pasienters problematikk og endring gjennom behandlingsforløp. Tilbakemeldingsverktøy viser her til standardiserte måleinstrumenter for psykisk tilstand, hvor helsepersonell, eller pasientene selv, rapporterer tilstand på sentrale kjennetegn for psykisk helse. Verktøyene kan administreres på papir eller gjennom web- og programvarebaserte støttesystemer.

Hvert spørsmål besvares på en Likert-skala fra 0 “Helt uenig” til 4 “Helt enig”.

Bakgrunn

Spørreinstrumentet er oversatt, tilpasset og videreutviklet fra the *Evidence-based Practice Attitude Scale (EBPAS) – 50 og 36* item versjoner (se referanser nedenfor). EBPAS måler helsepersonell sin innstilling til å lære seg evidensbaserte intervensjoner. EBPAS-ROM sine 9 subskalaer korresponderer med 9 av 12 subskalaer fra EBPAS.

Referanser

- Aarons, G.A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: the Evidence Based Practice Attitude Scale (EBPAS). *Mental Health Service Research*, 6(2), 61-74.
- Aarons, G.A., et al. (2012). Expanding the domains of attitudes towards evidence-based practice: the evidence based practice attitude scale-50. *Administration and Policy in Mental Health and Mental Health Services Research*, 39(5), 331-340.
- Rye, M., Torres, E. M., Friborg, O., Skre, I., & Aarons, Gregory A. (2017). The Evidence based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44).
- Rye, M., Rognmo, K., Aarons, G. A., & Skre, I. Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM. Submitted to Administration and Policy in Mental Health and Mental Health Services Research, October 2018, under review.

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EBPAS-Routine Outcome Monitoring version (EBPAS-ROM)

De følgende spørsmål omhandler din innstilling til å systematisk ta i bruk tilbakemeldingsverktøy for psykisk tilstand, for å få tilbakemeldinger på pasienters problematikk og endring gjennom behandlingsforløp. Tilbakemeldingsverktøy viser her til standardiserte måleinstrumenter for psykisk tilstand, hvor helsepersonell, eller pasientene selv, rapporterer tilstand på sentrale kjennetegn for psykisk helse. Verktøyene kan administreres på papir eller gjennom web- og programvarebaserte støttesystemer.

Vennligst sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av følgende skala:

0	1	2	3	4
Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig

For spørsmål 1-9: Hvis jeg fikk opplæring i bruk av tilbakemeldingsverktøy, ville jeg tatt det i bruk gitt at:

1. den virket fornuftig?..... 0 1 2 3 4
2. det ble pålagt av din leder? 0 1 2 3 4
3. det ble pålagt av din arbeidsplass? 0 1 2 3 4
4. det ble pålagt av myndighetene?..... 0 1 2 3 4
5. det ble brukt av kollegaer som var fornøyd med den? 0 1 2 3 4
6. jeg følte jeg hadde nok opplæring til å bruke det riktig?..... 0 1 2 3 4
7. pasientene mine ønsket det 0 1 2 3 4
8. jeg hadde innflytelse på hvordan jeg skulle bruke tilbakemeldingsverktøyene 0 1 2 3 4
9. bruken av tilbakemeldingsverktøy passet med din kliniske tilnærming 0 1 2 3 4

For spørsmål 10-18: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen ovenfor:

10. bruk av tilbakemeldingsverktøy er til hinder for å etablere kontakt med pasientene..... 0 1 2 3 4
11. tilbakemeldingsverktøy er ikke nyttige for pasienter med sammensatte problem 0 1 2 3 4
12. tilbakemeldingsverktøy har for snevert fokus 0 1 2 3 4
13. jeg foretrekker å jobbe på egen hånd uten tilsyn..... 0 1 2 3 4
14. jeg ønsker ikke at noen skal kikke over skulderen min mens jeg gjør jobben min 0 1 2 3 4
15. det er unødvendig å holde øye med arbeidet mitt 0 1 2 3 4
16. jeg har ikke tid til å lære noe nytt..... 0 1 2 3 4
17. jeg vet ikke hvordan jeg skal få passet inn bruk av tilbakemeldingsverktøy i
mine administrative oppgaver 0 1 2 3 4
18. bruk av tilbakemeldingsverktøy vil medføre for mye papirarbeid..... 0 1 2 3 4

EBPAS-Routine Outcome Monitoring version (EBPAS-ROM)

0	1	2	3	4
Helt uenig	Litt enig	Moderat enig	Ganske enig	Helt enig

For spørsmål 19-27: Sett en ring rundt tallet som viser i hvilken grad du er enig med hver påstand ved hjelp av skalaen ovenfor:

19. å lære å bruke tilbakemeldingsverktøy vil hjelpe meg å beholde jobben min.0 1 2 3 4
20. å lære å bruke tilbakemeldingsverktøy vil hjelpe meg med å få en ny jobb0 1 2 3 4
21. å lære å bruke tilbakemeldingsverktøy vil gjøre det lettere å finne arbeid.....0 1 2 3 4
22. Jeg vil lære å bruke tilbakemeldingsverktøy hvis det ble godkjent som videreutdanning....0 1 2 3 4
23. Jeg ville lære å bruke tilbakemeldingsverktøy hvis det ble gitt opplæring0 1 2 3 4
24. Jeg ville lære å bruke tilbakemeldingsverktøy hvis det ble gitt kontinuerlig oppfølging0 1 2 3 4
25. Jeg liker å få tilbakemelding på jobben jeg gjør0 1 2 3 4
26. Å motta tilbakemelding hjelper meg å bli en bedre terapeut.....0 1 2 3 4
27. Å motta veiledning hjelper meg til å bli en bedre terapeut0 1 2 3 4

Appendix VII

The Evidence-based Practice Attitude Scale – Routine Outcome monitoring (EBPAS-ROM),
English

EBPAS-Routine Outcome Monitoring version (EBPAS-ROM)

The EBPAS-ROM assesses mental health provider attitudes towards systematic use of routine outcome monitoring (ROM), to get feedback on patient's problems and change throughout the course of treatment. Routine outcome measures refer to standardized instruments assessing mental health status, in which health personal or patients themselves, report current status on common mental health issues. The instruments can be administered either on paper or through web- or software support systems

Items are presented on a 5-point Likert scale ranging from 0 "Not at All" to 4 "To a Very Great Extent".

Background

The instrument is rephrased and adapted from the *Evidence-based Practice Attitude Scale (EBPAS) – 50 and 36* item versions (see references below), assessing mental health provider attitudes toward adoption of evidence based interventions in mental health and social service settings. The EBPAS-ROM has been validated in norwegian language (manuscript submitted). EBPAS-ROM measures 9 domains corresponding to 9 out of 12 EBPAS subscales.

References

- Aarons, G.A. (2004). Mental health provider attitudes toward adoption of evidence-based practice: the Evidence Based Practice Attitude Scale (EBPAS). *Mental Health Service Research*, 6(2), 61-74.
- Aarons, G.A., et al. (2012). Expanding the domains of attitudes towards evidence-based practice: the evidence based practice attitude scale-50. *Administration and Policy in Mental Health and Mental Health Services Research*, 39(5), 331-340.
- Rye, M., Torres, E. M., Friborg, O., Skre, I., & Aarons, Gregory A. (2017). The Evidence based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12(44).
- Rye, M., Rognmo, K., Aarons, G. A., & Skre, I. Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM. Submitted to *Administration and Policy in Mental Health and Mental Health Services Research*, October 2018, under review.

For more information, contact:
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The following questions concerns your attitudes to systematically use routine outcome monitoring (ROM), to get feedback on patient’s problems and change throughout the course of treatment. Routine outcome measures refer to standardized instruments assessing mental health status, in which health personal or patients themselves, report current status on common mental health issues. The instruments can be administered either on paper or through web- or software support systems

Please indicate the extent to which you agree with each item using the below scale.

0	1	2	3	4
Not at all	Slight extent	Moderate extent	Great extent	Very great extent

For questions 1-9: If you received training in the use of ROM, how likely would you be to adopt it if:

- 1. it “made sense” to you?..... 0 1 2 3 4
- 2. it was required by your supervisor?0 1 2 3 4
- 3. it was required by your agency?0 1 2 3 4
- 4. it was required by your state?0 1 2 3 4
- 5. it was being used by colleagues who were happy with it?0 1 2 3 4
- 6. you felt you had enough training to use it correctly? 0 1 2 3 4
- 7. your clients wanted it? 0 1 2 3 4
- 8. you had a say in how you would use ROM 0 1 2 3 4
- 9. the use of ROM fit with your clinical approach.....0 1 2 3 4

For questions 10-18: Circle the number indicating the extent to which you agree with each item using the following scale:

- 10. the use of ROM detracts from truly connecting with your clients0 1 2 3 4
- 11. ROM is not useful for clients with multiple problems 0 1 2 3 4
- 12. Outcome measures are too narrowly focused 0 1 2 3 4
- 13. I prefer to work on my own without oversight..... 0 1 2 3 4
- 14. I do not want anyone looking over my shoulder while I provide services..... 0 1 2 3 4
- 15. My work does not need to be monitored.....0 1 2 3 4
- 16. I don’t have time to learn anything new..... .. 0 1 2 3 4
- 17. I don’t know how to fit use of ROM into my administrative work.....0 1 2 3 4
- 18. The use of ROM will cause too much paperwork0 1 2 3 4

0	1	2	3	4
Not at all	Slight extent	Moderate extent	Great extent	Very great extent

For questions 19-27: Circle the number indicating the extent to which you agree with each item using the following scale:

- 19. Learning to use ROM will help me keep my job 0 1 2 3 4
- 20. Learning to use ROM will help me get a new job..... 0 1 2 3 4
- 21. Learning to use ROM will make it easier to find work..... 0 1 2 3 4
- 22. I would learn to use ROM if continuing education credits were provided. 0 1 2 3 4
- 23. I would learn to use ROM if training were provided 0 1 2 3 4
- 24. I would learn to use ROM if ongoing support was provided 0 1 2 3 4
- 25. I enjoy getting feedback on my job performance..... 0 1 2 3 4
- 26. Getting feedback helps me to be a better therapist/case manager 0 1 2 3 4
- 27. Getting supervision helps me to be a better therapist/case manager..... 0 1 2 3 4

Appendix VIII

The Evidence-based Practice Attitude Scale – Routine Outcome monitoring (EBPAS-ROM),
scoring instructions

EBPAS-Routine Outcome Monitoring version (EBPAS-ROM)

Innstilling til systematiske tilbakemeldinger

Referanse:

Rye, M., Rognmo, K., Aarons, G. A., & Skre, I. Attitudes to the use of routine outcome monitoring of psychological therapies among mental health providers: The EBPAS-ROM. Submitted to Administration and Policy in Mental Health and Mental Health Services Research, October 2018, under review.

Spørsmål #	Skala ¹	Faktorladning	Alpha
Skala 1: Requirements			
3	Pålagt fra arbeidsplass (<i>Agency required</i>)	.98	
2	Pålagt fra leder (<i>Supervisor required</i>)	.96	
4	Pålagt fra myndigheter (<i>State required</i>)	.82	
Skala 2: Appeal			
6	Nok opplæring (<i>Enough training</i>)	.83	.74
5	Kollegaer fornøyd (<i>Colleagues happy</i>)	.68	
1	Virket fornuftig (<i>Makes sense</i>)	.53	
Skala 3: Limitations			
12	For snevert fokus (<i>Too narrowly focused</i>)	.79	.78
11	Sammensatte problem (<i>Clients with multiple problems</i>)	.73	
10	Etablere kontakt med pasientene (<i>Connecting with your clients</i>)	.69	
Skala 4: Fit			
8	Hvordan bruke (<i>Had a say in how I would use</i>)	.78	.74
9	Passet med klinisk tilnærming (<i>Fit with your clinical approach</i>)	.70	
7	Pasientene ønsket det (<i>Clients wanted it</i>)	.51	
Skala 5: Monitoring			
14	Kikke over skulderen (<i>Looking over my shoulder</i>)	.86	.84
13	Foretrekke jobbe uten tilsyn (<i>Prefer to work without oversight</i>)	.85	
15	Holde øye med arbeidet (<i>Work does not need to be monitored</i>)	.73	
Skala 6: Burden			
18	Medføre for mye papirarbeid (<i>Cause to much paperwork</i>)	.80	.70
17	Hvordan passe inn (<i>How to fit ROM in</i>)	.76	
16	Ikke tid lære noe nytt (<i>Don't have time to learn anything new</i>)	.42	
Skala 7: Job security			
20	Hjelp meg få ny jobb (<i>Help me get a new job</i>)	.91	.84
21	Lettere finne arbeid (<i>Make it easier to find work</i>)	.90	
19	Hjelp meg beholde jobben (<i>Help me keep my job</i>)	.62	
Skala 8: Organizational support			
23	Opplæring (<i>Training provided</i>)	.89	.79
24	Kontinuerlig oppfølging (<i>Ongoing support provided</i>)	.87	
22	Godkjent videreutdanning (<i>Education credits provided</i>)	.53	
Skala 9: Feedback			
26	Tilbakemelding hjelper bli bedre (<i>Feedback helps me be better</i>)	.87	.82
25	Liker tilbakemelding (<i>Enjoy feedback on performance</i>)	.83	
27	Veiledning hjelper bli bedre (<i>Supervision helps me to be better</i>)	.60	
Total scale			.85

¹Forkortelser av item/Abbreviated items (english in italics)

SCORING

The scoring of the scales are identical to the EBPAS-50 and EBPAS-36, which EBPAS-ROM is adapted from, see references below:

Scoring the scales: The score for each subscale is created by computing a mean score for each set of items that load on a given subscale. For example, items 1, 2, and 3 constitute Requirements subscale. If there is missing data in your data set, computing means may be done allowing for one fewer items than make up the scale.

Computing the total score: Only for the total score (not the individual scale scores), items from Limitations, Monitoring and Burden subscales **must be reverse scored** and the subscale score recomputed. After the reverse scoring is complete, then a mean of the scale scores may be computed to yield the mean score for the total EBPAS-ROM Item Score.

Scoring reference:

- Aarons, G.A., et al. (2012). Expanding the domains of attitudes towards evidence-based practice: the evidence based practice attitude scale-50. *Administration and Policy in Mental Health and Mental Health Services Research*, 39(5), 331-340.
- Rye, M., Torres, E.M., Friborg, O., Skre, I., & Aarons, Gregory A. (2017). The Evidence based Practice Attitude Scale- 36 (EBPAS-36): a brief and pragmatic measure of attitudes to evidence-based practice validated in US and Norwegian samples. *Implementation Science*, 12:44.