



Adaptation, personalization and capacity in mental health treatments: a balancing act?

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Purpose of review

There are increasing calls for mental health treatments to be adapted for different groups to maximize their acceptability and benefit to patients. However, adaptations can be costly to develop and evaluate, difficult to implement in routine clinical practice and may reduce service capacity at a time when there is unprecedented unmet need. An alternative method is personalization on an individual level. This review provides an overview of the issues related to personalization and adaptation of mental health interventions.

Recent findings

Several terms have been used to describe changes to existing therapies, these reflect different extents to which existing treatments have been changed. Evidence-based practice and modular therapies allow a level of flexibility within intervention delivery without formal changes and not all changes to therapy should be considered as a new/adapted treatment but instead regarded as metacompetence. Implementing existing interventions in new contexts is preferable to developing new interventions in many instances. New guidance outlines how researchers can adapt and transfer interventions to varied contexts.

Summary

The review provides proposed definitions of different changes to therapy. Modified and personalized treatments may improve acceptability to patients whilst maximizing implementation of evidence-based practice within clinical services.

Keywords

adaptation, implementation, mental health, personalization

INTRODUCTION

Estimates suggest that in 2019, one in eight people around the world were living with a mental health disorder [1]. Demand for services is increasing, and there is simply insufficient capacity to manage this within existing provision [2]. Many people are not able to access evidence-based support for mental health difficulties [3,4]. At the same time, there are increasing calls for mental health treatments to be tailored to maximize their acceptability and benefit to patients [5]. Although evidence-based psychological interventions can be highly efficacious for treating common mental health difficulties such as anxiety [6], effect sizes mask individual variation as not all patients benefit from these interventions [7]. However, creating new or 'adapted' treatments for different client groups is costly, requires new therapist training, and requires that therapists in services are trained in multiple interventions [8,9], which may further reduce service capacity as fewer therapists would be competent to deliver the intervention. How can we balance these needs of access and personalization when developing new interventions in

mental health research? This review provides an overview of the issues related to adaptation, personalization and implementation within mental health and innovate methods of addressing this tension, such as modular treatments or computerized treatments based on measurement of mental health symptoms in individuals.

DEFINITIONS

There are a number of overlapping terms in the literature associated with changes to evidence-based

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KEY POINTS

- Existing mental health interventions have been changed in various ways to meet the needs of the populations they are designed to serve.
- There are a number of overlapping terms in the literature associated with such changes. The overlapping terminology may make it difficult to assess the extent to which treatments are standard evidence-based interventions.
- We propose specific, distinct definitions of the ways in which existing evidence-based interventions may be changed and call for the definitions to be used consistently.
- Evidence-based practice and modular therapies allow a level of flexibility within intervention delivery without formal changes, and not all changes to therapy should be considered as a new/adapted treatment but instead regarded as metacompetence.
- Personalized treatments may maximize acceptability to individual patients through allowing flexibility, whilst ensuring clinicians maintain fidelity to the evidence-base. They may, therefore, enhance evidence-based practice within services without the need for adaptation.

interventions. The overlapping terminology may make it difficult to assess the extent to which treatments are ‘standard’ evidence-based interventions, and therefore, how confident services are to implement them without further training or specialist staff. Dictionary definitions of personalization (‘to

make something suitable for the needs of a particular person’) and adaptation (‘the action or process of changing something, or of being changed, to suit a new purpose or situation’) demonstrate that these concepts are related, yet different. Personalization suggests that an individual treatment can be changed to suit an *individual* client, whereas adaptation suggests that treatments are changed to suit *groups* of clients. ‘Tailoring’ (‘make or adapt for a particular purpose or person’), can refer to both groups or individuals. Table 1 outlines the different terms that have been used to describe changes to therapy protocols in the literature and Fig. 1 demonstrates how these concepts link together.

Treatments can be adapted or personalized in different ways. A recent review of adaptations to cognitive behavioural therapy (CBT) for adolescents with comorbid depression and chronic illness found that adaptations included those to both content and delivery [10¹⁰]. Content adaptations included cognitive restructuring of illness-related thoughts, behavioural activation balancing illness-related and enjoyable activities, and psychoeducation of the link between chronic illness and mental health. Adaptations to the delivery included being flexible through the use of the telephone and including parents in the intervention. A systematic review and conceptual typology of adapted psychological interventions for people from ethnic minority groups [11¹¹] categorized adaptations that were therapist-related, content-related and organization-specific (e.g. location of services, pathways into care, time or length of intervention). There was evidence for greater efficacy for adapted interventions compared with nonadapted

Table 1. Different terms that have been used to describe changes to therapy protocols in the literature

Concept	Dictionary definition	What this means for mental health interventions
Adaptation	The action or process of changing something, or of being changed, to suit a new purpose or situation	Changing an intervention for a group of people. However, the ways in which the intervention is changed can be hugely varied, ranging from changing the core content of the intervention, to amending language or examples to increase their relevance to different populations, to organization specific adaptations [6], such as changing the location of services or time/length of intervention, or mode of delivery (e.g. face-to-face to app).
Personalization	To make something suitable for the needs of a particular person	Personalized treatments are those that can be changed to suit individual patients, for example, modular treatments or treatments based on providing different strategies according to measurements and/or personal preferences.
Tailoring	Make or adapt for a particular purpose or person	Can refer to both groups or individuals – covers both adaptation and personalization.
Modification	Something that is changed slightly, especially to improve it or make it more acceptable or less extreme	A modified treatment suggests that the original treatment forms the vast majority of the new treatment, but there have been slight changes to content, for example, using examples or language related to specific client groups to improve its acceptability or effectiveness.
Expansion	The increase of something in size, number or importance	Suggests that the original treatment remains but that material has been added.

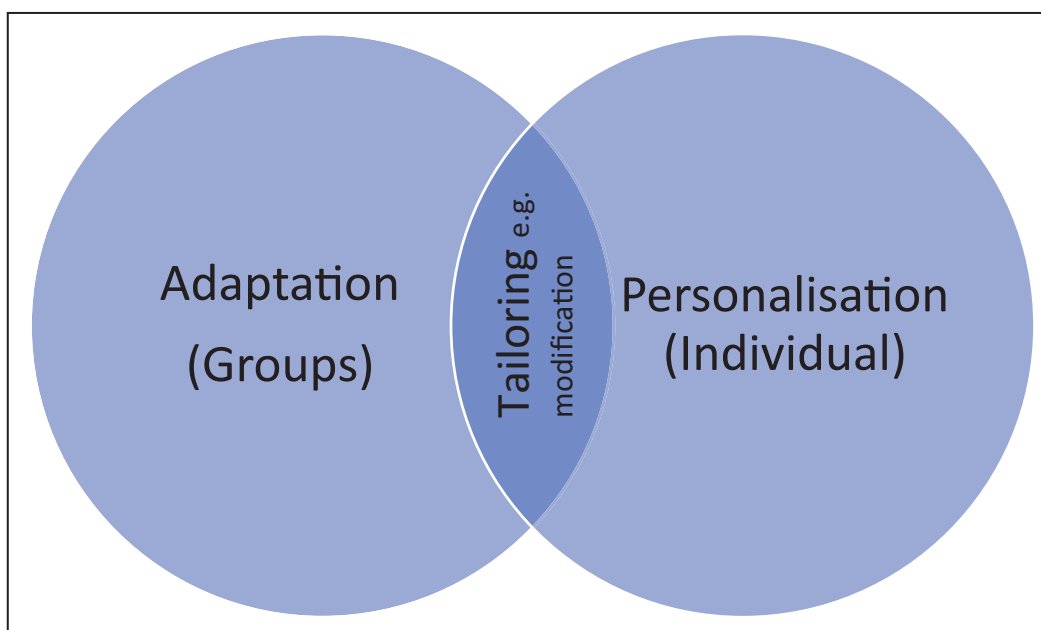


FIGURE 1. Conceptual diagram illustrating how terms are linked.

treatments, with suggestion that organization-specific adaptations may have the greatest benefits.

ADAPTATION VERSUS IMPLEMENTATION

Cuijpers *et al.* [12] argues that the focus on randomized controlled trial evidence of adapted versions of interventions for depression may be unhelpful, 'because the evidence indicates that all types and formats with human involvement are effective in all specific target groups'. Adapting interventions to suit different populations may potentially increase their efficacy, although that has yet to be established, but there are significant costs of developing and trialling an intervention and training therapists to deliver it [9]. There may also be costs associated with confidence of therapists to deliver interventions within routine practice and for therapists to be able to learn multiple different interventions for their client groups [9]. In the case of chronic illness, for example, many clinicians feel ill-equipped to manage mental health difficulties in this context [13]; there is evidence that standard, un-adapted interventions are effective [14] but not implemented routinely [15]. Arguably, focusing on implementing standard, un-adapted interventions would help meet a huge demand for mental health support in this population as large numbers of clinicians are already trained in these interventions [16]; the creation of specially adapted interventions would imply that standard interventions should not be used; therefore, further disadvantaging this already disadvantaged group of patients.

However, while un-adapted interventions are effective, and we may not need to create new, specialist treatments for each patient group, or assess the efficacy of old treatments in new populations, there is good reason to adapt interventions to new situations. There is a known implementation gap for evidence-based practice in CBT [17–20]. Many people still do not access evidence-based interventions [19], and there are many barriers to the dissemination of evidence-based psychological treatments [20]. Such gaps may be addressed through implementation science.

Moore *et al.* [21**] have developed the 'ADAPT guidance', recognizing that 'Implementing interventions with a previous evidence base in new contexts might be more efficient than developing new interventions for each context' but that 'although some interventions transfer well, effectiveness and implementation often depend on the context'. The guidance outlines methods to adapt existing interventions for new *contexts*, including new settings and healthcare systems or new populations or population subgroups. They suggest that this may support efforts to reduce inequalities through ensuring interventions are appropriate for the needs of disadvantaged groups. Their approach emphasizes the importance of implementation science rather than creation of new interventions. Implementation Science is: 'the scientific study of methods and strategies that facilitate the uptake of evidence-based practice and research into regular use by practitioners and policymakers' and implementation-focused trials that centre on such factors are likely to be of value.

HOW CAN INTERVENTIONS BE ADAPTED TO MAXIMIZE IMPLEMENTATION?

There are two key points to be kept in mind when adapting interventions to maximize implementation:

Evidence-based practice and ‘good’ therapy

The new Medical Research Council (MRC) and National Institute for Health Research (NIHR) complex intervention research framework provides a structure for developing and evaluating complex interventions [22]. It states that within development of a complex intervention, the complexity may relate to the ‘level of flexibility or tailoring of the intervention or its components that is permitted (i.e. how dynamic or adaptive the intervention is)’ and that ‘flexibility in intervention delivery and adherence might be permitted to allow for variation in how, where, and by whom interventions are delivered and received. Standardization of interventions could relate more to the underlying process and functions of the intervention than on the specific form of components delivered’. They provide the example of surgical trials in which the protocol can be designed with flexibility for intervention delivery; there is no suggestion that such flexibly delivered interventions are different from each other. This suggests that interventions do not need to be ‘adapted’ in order to flexibly meet the needs of specific patients or patient groups.

This concept has also been described by Kendall *et al.* [23] as ‘flexibility within fidelity’. Kendall *et al.* have described how therapists are prone to cognitive processing errors, assuming that the specific circumstances of the client or client groups we work with make them different to the empirical findings of trials, and therefore, discount standard evidence-based interventions. In reality, ‘actuarial prediction is superior to clinical prediction’ (p. 2), and therefore, it is likely to be more beneficial to use the evidence-based treatment. Kendall *et al.* suggest that rather than using a nonevidence-based treatment, therapists should ‘take the client’s specifics into account and apply the known-to-be-effective treatment with flexibility’ (p. 2).

This recommended flexibility is fundamental to CBT, which is recommended by guidelines as a first-line treatment for many common mental health problems globally. Competence frameworks for CBT therapists, which describe the skills, competent CBT therapists should possess [24], state a number of ‘metacompetencies’ in line with this principle:

(1) Capacity to implement treatment models in a flexible but coherent manner.

- (2) Capacity to adapt interventions in response to client feedback.
- (3) Capacity to use and respond to humour.
- (4) Capacity to implement CBT in a manner consonant with its underlying philosophy.
- (5) Capacity to formulate and to apply CBT models to the individual client.
- (6) Capacity to select and skilfully to apply the most appropriate CBT intervention method.
- (7) Capacity to structure sessions and maintain appropriate pacing.
- (8) Capacity to manage obstacles to carrying out CBT.

Evidence-based interventions such as CBT are inherently flexible, should be personalized to meet the needs of individual clients and therapists who do not modify the treatment are not competent therapists delivering good therapy. This is consistent with evidence-based practice within medicine more broadly. The definition of evidence-based practice constitutes three components: research evidence, clinical expertise and patient values, preferences and characteristics [25], that is, that interventions are not based on the research evidence alone, but that the research evidence is applied flexibly, accounting not only for the clinician’s own expertise but also the patient’s specific needs.

Personalization

Whilst a multitude of specific, adapted interventions tested in randomized controlled trials may not be a feasible way to meet the current mental health needs of the population, personalized interventions may be a helpful way forward. Changing the individual treatment to suit individual clients in this way allows for one standardized intervention to be applied flexibly across a range of populations or presenting difficulties. There is some evidence that patients prefer personalized interventions, and that personalization may enhance adherence and engagement [26].

One method by which personalization can be achieved is modular treatments. Modular treatments, in which therapists and/or clients can select the elements of protocols most suited to their presentation and needs allow protocolized, standard interventions to be delivered flexibly, allowing for patient variation. Decisions regarding which modules or elements are used may be based on clinical judgement, patient choice, data from outcome measurement or a combination [27]. For example, the Modular Approach to Therapy for Children with Anxiety, Depression, Trauma or Conduct problems (MATCH ADTC; [28]) combined modules for four

common mental health problems for children and young people, allowing treatment of more than one area of difficulty. This accounts for the high rates of co-occurring mental health difficulties in children and young people seen in clinical practice. A therapist ‘dashboard’ containing scores from weekly measurements of goal progress and symptoms together with a flow-chart/algorithm guides module choice. The MATCH-ADTC intervention is inherently personalized but has also been modified to suit different contexts. For example, in line with the ADAPT guidance, one study modified and expanded the intervention to enable the intervention to be implemented within the context of physical healthcare services [29]. Rather than developing a new intervention from scratch, implementation science methods, including a systematic literature review, focus groups of families and clinicians, plan-do-study-act cycles and qualitative interviews, were used to modify and expand the existing intervention to meet the needs of this different setting. Overall, the content of the intervention remained largely unchanged but additional modules were added specific to the needs of families and young people with epilepsy, and brief training was developed to support delivery from within a physical healthcare setting. Normalization Process Theory was used to guide this process to ensure that the intervention would be sustained in routine practice.

Other ways in which interventions may be personalized include maximizing the use of technology, for example, using apps to collect measures of mental health symptoms and providing different strategies according to the results of those measures (see [30]). It is also possible for digital interventions to be personalized through allowing patients to choose the content they consider most relevant to them [31].

CONCLUSION

A number of terms have been used to describe changes to existing therapies, including adaptation, personalization, modification, tailoring and expansion. These reflect different extents to which existing treatments have been changed. It is recommended that that these terms are used consistently, and that the flexibility inherent in evidence-based practice means that standard protocols can be used across a variety of mental health patients and settings without the need for extensive revision. When needed, ADAPT guidance outlines how researchers can adapt and transfer interventions to new contexts. Modified and personalized treatments may balance the need for personalization with the implementation of standardized interventions, hence improving relevance and

acceptability to patients whilst maximizing implementation within clinical services.

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Conflicts of interest

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- of special interest
- of outstanding interest

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