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## Psychological Treatments for the World: Lessons from Low- and Middle-Income Countries:

### Annual Review of Clinical Psychology

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### Abstract

Common mental disorders, including depression, anxiety, and posttraumatic stress, are leading causes of disability worldwide. Treatment for these disorders is limited in low- and middle-income countries. This systematic review synthesizes the implementation processes and examines the effectiveness of psychological treatments for common mental disorders in adults delivered by nonspecialist providers in low- and middle-income countries. In total, 27 trials met the eligibility criteria; most treatments targeted depression or posttraumatic stress. Treatments were commonly delivered by community health workers or peers in primary care or community settings; they usually were delivered with fewer than 10 sessions over 2–3 months in an individual, face-to-face format. Treatments included common elements, such as nonspecific engagement and specific domains of behavioral, interpersonal, emotional, and cognitive elements. The pooled effect size was 0.49 (95% confidence interval = 0.36–0.62), favoring intervention conditions. Our review demonstrates that psychological treatments—comprising a parsimonious set of common elements

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and delivered by a low-cost, widely available human resource—have moderate to strong effects in reducing the burden of common mental disorders.

### Keywords

global mental health; psychological treatments; low- and middle-income countries; implementation processes; common elements; systematic review; meta-analysis

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## INTRODUCTION

Common mental disorders (CMDs), which include depressive, anxiety, and posttraumatic stress disorders, represent one of the leading causes of disability worldwide (Whiteford et al. 2013). Global prevalence rates are estimated at 4.7% for depressive disorders (Ferrari et al. 2013) and 7.3% for anxiety disorders (Baxter et al. 2013). Among populations affected by political violence and displacement, which primarily occur in low- and middle-income countries (LMICs), the prevalence rates of depression and posttraumatic stress average, respectively, 30.6% and 30.8% (Steel et al. 2009). Twelve-month prevalence rates are estimated at 17.6% for all CMDs worldwide, and 29.2% of adults will experience a CMD at some point during their life (Steel et al. 2014). CMDs also account for 41.9% of the burden of all mental and substance use disorders (Whiteford et al. 2013). CMDs significantly impair the quality of life, social functioning, and workforce participation of sufferers and their family members and larger communities (Chisholm et al. 2016, Whiteford et al. 2015). Consequently, the annual global cost attributable to CMDs is estimated at \$1.15 trillion (Chisholm et al. 2016).

Empirically supported psychological treatments are among the most effective mental health interventions for treating CMDs (Patel et al. 2016a). However, they are not accessible for most populations in most countries. This is particularly true in LMICs, where intervention coverage for CMDs is estimated at 7% to 28%, resulting in a treatment gap of up to 93% (Chisholm et al. 2016). A recent review observed a treatment gap of more than 90% for CMDs in India and China, two relatively well-resourced middle-income countries (Chisholm et al. 2016, Patel et al. 2016b). There are many reasons for the poor coverage of psychological treatment including a reliance on a limited number of specialists to provide or supervise treatments, as well as to train therapists (Kohrt et al. 2015); the use of highly specific disorder-based treatment packages (England et al. 2015, Kazdin 2016, Murray et al. 2014, Weisz et al. 2012); and the stigma of seeking help for CMDs and other mental illnesses (Semrau et al. 2015).

The dissemination and implementation of empirically supported psychological treatments in any setting can be challenging (Kazdin 2016). The barriers are, in part, due to the nature of how these treatments develop, which typically begins in highly specialized academic centers and involves individuals who are attending mental health clinics (and, therefore, already have a psychological explanatory model) and who are drawn from a narrow sociocultural group. Additionally, these psychological treatments rely on expensive but scarce mental health professionals for delivery. Moving to real-world, LMIC-based settings, in which the vast majority of individuals with CMDs will pursue treatment options through primary

health-care or other community platforms, requires psychological treatments to be delivered by nonspecialist providers (NSPs; i.e., through task sharing) and addresses explanatory models distinct from those of mental health practitioners. Thus, although the World Health Organization's (WHO's) Mental Health Gap Action Program (mhGAP; WHO 2015) recommends psychological treatments as first-line treatment for CMDs, the challenge lies in determining how these can be delivered in real-world settings.

During the past 15 years, global mental health researchers have developed innovative approaches to reduce psychological treatment gaps by addressing some of the barriers to implementation. Examples include aligning the treatment content with prevailing illness beliefs; delivering the treatment in accessible settings, such as in primary care and in community settings; and using NSPs to enhance the availability of human resources for delivery (van Ginneken et al. 2013). Systematic reviews (Clarke et al. 2013, van Ginneken et al. 2013) have demonstrated that these innovations have been associated with moderate to large effects on clinical and social outcomes in individuals with CMDs. More recently, global mental health has followed trends from high-income countries (HICs), moving toward transdiagnostic, or common element, approaches that address the barrier of focusing on treating a single disorder (Bolton et al. 2014a,b; Murray et al. 2014). Transdiagnostic treatments teach a set of common practice elements that can be delivered in varying combinations to address a range of problems. Decision rules based on research conducted on effective psychological treatments guide the selection and sequencing of elements, but allow for flexibility in addressing an individual's symptom presentation (Chorpita & Daleiden 2009). Identifying which common elements are used in psychological treatments is an implementation strategy that is likely to help with dissemination, scale-up, and, ultimately, sustainability.

Despite the growing evidence that testifies to the success of psychological treatments in the global context, there is no review of relevant implementation processes or the common elements utilized when delivering psychological treatment to adults in LMICs. Such a synthesis has relevance for the scaling-up of these approaches, not just in LMICs but also for HICs, which are also struggling to reduce treatment gaps.

## Aims

The aim of this review is to synthesize key implementation processes related to the delivery of psychological treatment in LMICs by NSPs and to update the evidence on their effectiveness for treating adults with CMDs. The primary research questions we address are

- what was the composition of the psychological treatments for CMDs in terms of their components (i.e., elements and techniques);
- who delivered the psychological treatments (i.e., a description of the NSPs and their supervisors);
- where were the psychological treatments delivered;
- how were NSPs trained and supervised and how were psychological treatments delivered, including a description of training and supervision procedures, and how were sessions delivered; and

- what is the relative effectiveness of these psychological treatments on clinical outcomes, and what are the effects of the components on effectiveness.

The ultimate goal of our systematic review was to generate knowledge to inform the design of psychological treatments for scalability and effective delivery to the large proportion of individuals with CMDs in resource-constrained contexts. We also intended to identify knowledge gaps for future research.

## Guiding Principles

Our approach to reviewing the evidence base is consistent with the US Institute of Medicine's recent framework for psychosocial interventions, which calls for independent systematic reviews followed by the selection and development of quality measures to enhance the implementation of these psychological treatments in routine care (England et al. 2015). Three principles guided our approach in this review.

First, we focused only on articles in which psychological treatments for CMDs had been evaluated through a randomized controlled trial (RCT) to ensure that we assessed high-quality data and to enable us to examine implementation processes, including treatment elements, in relation to effectiveness. Also, we focused on depression, anxiety, and posttraumatic stress for the following reasons: CMDs are the leading mental health cause of the global burden of disease (Chisholm et al. 2016); WHO's guidelines recommend psychological treatment as first-line treatment for CMDs (WHO 2015); and the vast majority of trials in LMICs target CMDs (van Ginneken et al. 2013).

Second, we included only articles in which the front-line delivery of psychological treatment was carried out by NSPs. Task-sharing, also known as task-shifting, refers to collaborating with NSPs to deliver health-care services that have been traditionally relegated to experts with professional degrees or certifications (WHO 2008). In the context of global mental health, an NSP is defined as anyone who provides, or intends to provide, mental health care but has not had specialized professional clinical training in a field closely related to mental health (van Ginneken et al. 2013). NSPs may include, but are not limited to, community health volunteers, peers from the same community, social workers, midwives, auxiliary health staff, teachers, primary care doctors and nurses, and persons without a professional service role. The rationale for the principle of involving NSPs is that it is extremely unlikely that there will ever be sufficient mental health professionals to deliver psychological treatment in any country; thus, dissemination hinges on delivery by NSPs. Our criteria did not, however, imply there was no role for mental health professionals who could be engaged in capacities such as being a supervisor or trainer.

Third, we carried out our analysis of the treatment content by adopting the distillation approach of dismantling the psychological treatment packages into their common elements. Based on several studies (Chorpita & Daleiden 2009, Chorpita et al. 2007), the recent IOM report (England et al. 2015) called for identifying the therapeutic elements that are common across effective psychological treatments. Such an approach lies at the heart of some transdiagnostic treatments in which a set of common elements can be delivered in varying combinations to address diverse mental health conditions (Farchione & Bullis 2014, Kaehler

et al. 2016, McHugh et al. 2009). Transdiagnostic treatments may be particularly suitable for CMDs because these disorders share genetic, familial, and environmental risk factors (Kendler 1996, Kessler et al. 2005) and, unsurprisingly, are often comorbid conditions (Brown et al. 2001). Furthermore, it is not feasible to train NSPs to deliver multiple types of psychological treatments, given limited funding and scarce personnel (Murray & Jordans 2016); also, the use of multiple treatment manuals can lead to confusion and redundancy (Kazdin & Blase 2011). Thus, by using existing blueprints (e.g., Chorpita & Daleiden 2009, Michie et al. 2013, Murray et al. 2014) we aimed to develop a taxonomy of common elements that pertains to adults in LMICs.

## METHODS

### Protocol and Registration

We conducted a systematic review and meta-analysis in accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al. 2009). The protocol was developed following the procedures outlined in the Cochrane handbook for systematic reviews (Higgins et al. 2011) and registered with PROSPERO (the international prospective register of systematic reviews; CRD42016029451).

### Search Strategy

We used search strategies from the most recent Cochrane review of mental health treatments delivered by nonspecialist health workers in LMICs (van Ginneken et al. 2013). All articles retrieved using these strategies that met the eligibility criteria (described in the next section) were included in the current review. To update the review with recent publications, we extended the search from January 2012 to March 2016, utilizing the following databases: CINAHL (search date of March 15, 2016), Ovid MEDLINE (March 15, 2016), Ovid MEDLINE In-Process (March 15, 2016), WHO's Global Index Medicus (March 15, 2016), PsychINFO (March 15, 2016), Web of Science (full catalogue) (March 16, 2016), Cochrane CENTRAL (March 18, 2016), and EMBASE (March 18, 2016). The search strategies are available in the Supplemental Appendix. In addition, the bibliographies of systematic reviews of psychological treatments delivered by NSPs in LMICs were also considered (Chowdhary et al. 2014, Clarke et al. 2013, Rahman et al. 2013, van't Hof et al. 2011, van der Waerden et al. 2011, van Ginneken et al. 2013).

### Eligibility Criteria

Articles eligible for inclusion were required to demonstrate the following five characteristics:

1. The trials were conducted in an LMIC as defined by The World Bank Group in 2015 (World Bank 2015) or at the time of the trial (e.g., trials conducted in Chile prior to Chile becoming a high-income country). Consistent with prior reviews in LMICs (van Ginneken et al. 2013), Taiwan was grouped with China, even though Taiwan is categorized as an HIC.
2. The psychological treatment was delivered by an NSP.

3. The psychological treatment outcomes included CMDs: depression, anxiety, and posttraumatic stress disorder.
4. The participants were adults, defined as individuals aged 18–65 years (no articles were found that exclusively targeted persons older than 65 years).
5. The trial was an RCT.

There were two exclusion criteria:

1. The trials included only self-help treatments without an NSP delivery component.
2. The trials were feasibility or pilot trials; however, if the feasibility or pilot trial was tied to a published RCT, then data were extracted from these secondary sources.

### **Trial Selection**

Two researchers (D.R.S. and B.A.K.) and two research assistants independently identified eligible articles by systematically screening titles and abstracts to determine whether an article met the eligibility criteria. Each abstract that was deemed ineligible was screened by the second researcher and, if necessary, by a third researcher (V.P.) to reach a final consensus. Next, eligible articles were distributed among the researchers (D.R.S., B.A.K., L.K.M., and A.A.) and the full-text was screened. At this stage, articles that were deemed ineligible were verified by two additional researchers. Once eligible trials had been identified, their bibliographies were reviewed to identify any related articles, including those describing protocols for the development or adaptation of the tested treatment, or secondary analyses, and these additional articles were drawn upon as secondary publications to enrich the data sources for the eligible trials. Although most articles reported only one trial, two articles each reported two trials, so data extraction and analysis were conducted for each specific trial.

### **Development of Taxonomy of Treatment Components**

Our aim was to develop a taxonomy of treatment components, comprising elements and techniques, that cut across treatment packages. We defined an element as a therapeutic activity or strategy (Chorpita & Daleiden 2009, Chorpita et al. 2007, England et al. 2015), and a technique as skills that the therapist implements during a session to deliver an element. We further categorized elements into nonspecific elements (also referred to as engagement elements), which are universal to the therapy experience and reflective of the approach used by the therapist to engage a patient or implement the therapy, or both (Becker et al. 2015, Duncan et al. 2010, Wampold 2015). We defined specific elements as those that are grounded in specific psychological mechanisms; these were grouped into four broad domains to facilitate heuristic understanding: emotional, behavioral, cognitive, and interpersonal. These domains were not synonymous with a particular class of treatment.

We conducted a systematic, multistep analysis of existing taxonomies of common psychological treatment elements and behavioral change techniques used for CMDs (Chorpita & Daleiden 2009, Chorpita et al. 2007, Michie et al. 2013, Murray et al. 2014,



PracticeWise 2015). Next, we compiled a list of eligible elements and reviewed these for duplication and redundancy. After that, each element was operationalized and reviewed by the researchers. Four rounds of pilot testing followed, whereby four researchers independently coded two or more eligible trials to test and iteratively adapt the existing taxonomy. During this phase, interrater reliability was estimated using an intraclass correlation (ICC). After each round of coding, similarities and discrepancies were discussed among the coders, and modifications were made to the taxonomy. Our final round of coding indicated a high degree of agreement among coders (ICC = 0.77–0.85). At this stage, an expert panel of psychological treatment researchers (see Acknowledgments) was invited to review the taxonomy to comment, for example, on the classification of elements and techniques, missing elements, or redundancies.

Next, primary authors were contacted via email and asked to complete an online survey and select which elements and techniques from the taxonomy comprised components of their treatment, as well as to select the treatment class (or classes) to which their psychological treatments belonged (a copy of the author survey is available in the Supplemental Appendix). In the event that trial authors perceived that the existing taxonomy did not accurately capture the elements in their treatment package, they were also given the option of using the Other category to elaborate upon existing elements or add elements. Finally, for those trials in which the authors did not respond, two researchers independently coded the same article with high interrater reliability (ICC = 0.90). Discrepancies were discussed and, when necessary, a third researcher was consulted. A final review of the taxonomy took place following responses from the authors of the eligible trials, resulting in the current taxonomy, which includes 18 specific elements in four domains (behavioral, interpersonal, cognitive, and emotional); 9 nonspecific engagement elements; and 12 in-session techniques (Figure 1).

### Data Extraction

Apart from the data on treatment components described above, two other types of data were extracted by the review authors: (a) those related to other implementation processes (Figure 2), and (b) data for the meta-analyses.

For other implementation processes, data extraction was conducted by distributing the articles to four researchers (D.R.S., B.A.K., L.K.M., and A.A.). We extracted data relevant to the themes of the analysis, both from the primary RCT publications and, when available, from linked articles describing how the treatment was developed and delivered (a copy of the implementation coding is available in the Supplemental Appendix). Linked articles included trial protocols, articles about developing the treatments, or secondary analyses, and they were utilized to supplement the descriptions in the primary trial article (see Table 1 for citations to these articles).

### Trial characteristics

To conduct meta-analyses of the effects of the psychological treatments on continuous outcomes of CMDs, we extracted the means and standard deviations of primary endpoints for both the intervention and control arms and their respective sample sizes. When multiple



control groups were available, data from the active control group were prioritized for extraction. When relevant information was not available for either type of data, we contacted the primary authors for clarification.

## Analyses

We estimated the frequency of the use of each specific implementation process and treatment component. All frequencies are represented by a percentage in which the denominator is the total number of eligible trials ( $N = 27$ ), unless otherwise indicated (e.g., if data were not specified or missing for a particular variable). We also estimated the total number of individual treatment elements and in-session techniques for each trial and further grouped them according to the primary disorder outcome as defined by the trial's author. For some variables, there was the option to choose the category Other (e.g., for the treatment setting), whereby authors could insert a category that was not included in the response options. When variables were labeled Other, they were analyzed qualitatively by two researchers, and this analysis was then used to generate frequencies for each code. When possible, the mean was calculated along with the 95% confidence interval (CI). When ranges were provided for a particular trial (e.g., 6 to 10 sessions), the average was used (e.g., 8 sessions). Outliers were identified and, when applicable, analyses were repeated without these outliers.

For the meta-analyses, we utilized all available outcome data for CMDs in each trial (any CMD; depression, posttraumatic stress, anxiety, or mixed anxiety/depression). Analyses were carried out using Cochrane Review Manager version 5.3 (Cochrane Collab. 2014). This program requires means and standard deviations for both the intervention and control groups to calculate the standardized mean difference (SMD). A forest plot of the SMDs with summary statistics (pooled effect sizes) was calculated. Those trials without available data (e.g., trials that presented results as odds or risk ratios) were not included in our meta-analyses. We employed a random-effects analysis because we expected heterogeneity arising from the presence of cluster randomized controlled trials for which the random-effects model is the method of choice (Hayes & Moulton 2009). Heterogeneity among trials was calculated using the  $I^2$  measure of inconsistency. One forest plot with a pooled estimate was calculated using all primary outcomes. Additional forest plots with pooled estimates were calculated separately by condition (depression, posttraumatic stress, anxiety, mixed anxiety/depression), employing both primary and secondary outcomes. A test for subgroup differences was conducted among conditions. We did post hoc subgroup analyses using leave-one-out analyses to test the impact of excluding single trials that had a disproportionately large effect.

Finally, we conducted exploratory analyses of the domains of treatment elements and in-session techniques by calculating the simple summative score for the diversity of elements per subcategory. Again, treatment elements and in-session techniques were calculated for each eligible trial ( $N = 27$ ). Thus, larger scores reflect a greater number of elements per subcategory (e.g., a treatment in which collaboration and empathy were used as the nonspecific elements would be scored 2 compared with a treatment that used only empathy as a nonspecific element, which would receive a 1). Correlations among the total number of

element domains were estimated using Pearson's  $r$ . Effect sizes were calculated using the SMDs for the primary continuous outcomes when relevant data were available. Additionally, we were able to transform the binary outcome data using an online calculator to estimate the effect size (<https://www.campbellcollaboration.org/effect-size-calculator.html>, Campbell Collab., Oslo, Norway). Thus, we were able to include results from all trials in these analyses.

To estimate the independent effects of specific and nonspecific domains on trial effectiveness, we analyzed two separate models using forward multiple regressions: (a) in the first model the dependent variable was the effect size (as described above) as predicted by two independent variables—the summed score of all treatment-specific elements and the summed score of the nonspecific elements; and (b) in the second model the dependent variable was the effect size as predicted by five independent variables, each representing one summed score for each domain of engagement, behavioral, cognitive, interpersonal, and emotional elements. For these analyses, we selected only one outcome estimate for each trial, prioritizing the continuous outcome defined as primary by the authors to estimate the effect size. Model fit and the variance accounted for by the model was estimated ( $F$ ,  $R^2$ ). The variance inflation factor (VIF) was calculated for each model to assess multicollinearity among independent variables, with a conservative estimate (VIF = 5). These quantitative analyses were conducted using SAS 9.3 (SAS Inst. 2011).

## RESULTS

### Trial Selection and Participant Response

Figure 3 presents the flowchart describing the inclusion of articles. We began our review by identifying 11 articles from the latest Cochrane Review (van Ginneken et al. 2013). Our systematic review of publications since the publication of van Ginneken et al. (2013) yielded 6,645 eligible articles, after removal of duplicate references. Our review of other systematic reviews yielded 4 articles that had not been found during our systematic search. After title, abstract, and full paper review, our final review included 25 articles, which included 27 trials (two articles included data on two trials). Among the 25 authors who were contacted to enter their treatment data, 21 (84%) completed the online survey used to distill treatment components.

### Trial Characteristics

Eligible trials and their characteristics are displayed in Table 1. Among these, 22 were individual RCTs and 5 were cluster randomized controlled trials. The trials were conducted in 17 countries, most commonly in sub-Saharan Africa ( $n = 7$ , including 2 in Uganda), East Asia ( $n = 6$ , including 5 from China or Taiwan), South Asia ( $n = 5$ , including 3 from Pakistan) and 3 each from Chile and Iraq. Almost half of the trials took place among urban populations, with the remainder equally distributed among rural and semiurban populations. The target population in most trials was primary care attendees (77.8%), followed by torture survivors (14.8%), persons living with HIV (7.4%), and refugees (7.4%). The majority of trials (62.9%) targeted only women, almost half of whom were mothers in the pre- or postnatal phase. Trial participants were most likely to be recruited from primary health-care

settings, notably those providing maternal and reproductive services ( $n = 12$ ), followed by community settings ( $n = 8$ ), and participants' homes ( $n = 6$ ). Home-based recruitment typically took place in refugee camps or communities in which house-to-house screening was used to identify potential participants who had a CMD. Other settings included specialty services in HIV facilities. The median sample size inclusive of intervention and control arms was 194 participants (range = 15 to 1,961). Excluding the outliers of the largest and smallest trials (Patel et al. 2010,  $n = 1,961$ ; Hirani et al. 2010a,  $n = 15$ ), the average sample size for the trials was 219 participants (range = 49–798). The average age of participants was 33.9 years (95% CI = 31.1–36.9). The majority of participants were from low socioeconomic backgrounds—for example, they had relatively low levels of education or did not have formal employment outside of the home, or both.

### What: Implementation Processes Related to Treatment Components

The five most commonly endorsed nonspecific elements were empathy (88.9%); collaboration (85.2%); active listening (77.8%); normalizing treatment or aspects of the illness (70.4%), or both; and involving family members or a significant other (63.0%). The five most commonly used specific elements were eliciting or identifying social support (85.2%); engaging in problem-solving (80.8%); identifying or eliciting affect (76.9%), or both; linking affect to events (76.9%); and identifying thoughts (63.0%). At least one behavioral, interpersonal, and emotional element was used in 23 trials (85%); at least one cognitive element was used in 20 trials (74.1%). The specific elements least often used were mindfulness (0%), distraction (14.8%), self-talk (22.2%), exposure (22.2%), and relaxation (22.2%). The least commonly used nonspecific element was case management (18.5%). Among the additional nonspecific elements suggested by trial authors, one author suggested “giving hope” and another suggested “making eye contact.” Figures 4 and 5 present, respectively, the frequencies of the use of elements and techniques.

Overall, treatments included an average of 5.22 out of 9 nonspecific elements and 7.81 out of 18 specific elements. On average, treatments comprised 2.24 out of 5 behavioral elements, 2.26 out of 4 emotional elements, 1.71 out of 3 interpersonal elements, and 1.74 out of 6 cognitive elements. The contribution of the domains of elements (nonspecific versus specific, and the domains of specific elements) on treatment outcomes are described in the section titled *The Effectiveness of Treatments for Common Mental Disorders Delivered by Nonspecialist Providers in Low- And Middle-Income Countries*. The most common in-session techniques used were psychoeducation (85.2%), providing direct suggestions (59.2%), assigning homework (59.2%), giving praise (55.6%), and goal setting (55.6%). The least common in-session techniques used were biofeedback or neurofeedback (0%), behavioral contracting (7.4%), and giving the sick role or using motivational interviewing (18.5% each). When asked, most authors (63%) indicated they used more than one class of treatments, with 2.26 classes being the average (95% CI = 1.76–2.77). The most commonly used treatment class was psychoeducation (33.3%), followed by problem-solving (23.1%), cognitive behavioral therapy (17.9%), and behavioral activation or interpersonal psychotherapy (12.8%). No additional classes of psychological treatments were proposed by authors.

We measured the internal consistency of the taxonomy by using Cronbach's  $\alpha$  (Cronbach 1988), which indicated modest to good reliability within the domains of specific elements (cognitive:  $\alpha = 0.593$ ; behavioral:  $\alpha = 0.601$ ; emotional:  $\alpha = 0.662$ ; interpersonal:  $\alpha = 0.673$ ), within nonspecific elements ( $\alpha = 0.781$ ), and within in-session techniques ( $\alpha = 0.842$ ). We observed significant correlations between these domains, in particular between the behavioral and cognitive domains ( $r = 0.611$ ,  $p < 0.001$ ) and between the emotional and interpersonal domains ( $r = 0.474$ ,  $p < 0.01$ ). Similarly, the domain of nonspecific elements was significantly correlated with the specific element domains ( $r = 0.425$ – $0.483$ ,  $p < 0.01$ ), with the exception of the cognitive element domain ( $r = 0.235$ ,  $p = 0.240$ ).

Almost half of the trials targeted parenting ( $n = 13$ ); typically, those trials targeted mothers by providing psychoeducation related to childcare for parents or by focusing on parent–child interactions. Approximately one-quarter of all trials (22.2%) targeted substance abuse; 18.5% included the ability to prescribe psychotropic medications. These components were not included in our final taxonomy as they did not primarily target the CMD outcome.

### Who: Implementation Processes Related to Who Delivered the Treatment

The most common NSPs were community health workers employed through the health system (33.3%). The other frequently used personnel were peers or individuals specifically recruited for the trial from the same community (29.6%), nurses (18.5%), and midwives (14.8%). The rationale for selecting a given NSP was described by about half of the trials ( $n = 13$ ): The most common rationale was that the NSPs were close to and had frequent contact with the target community (46.2%); also important were acknowledging the value of peer support (30.7%) and seeing the chosen individuals as a sustainable resource (23.1%) (e.g., by being employed at a local health center). Selection criteria for NSPs typically reflected their language proficiency or communication skills, or both, including their general interpersonal skills and fluency in local dialects. Among the 13 trials that reported education levels for NSPs, 30.8% reported that NSPs had up to a postgraduate education, but nearly one-quarter (23.1%) reported NSPs had only primary education (23.1%). One trial included literate NSPs as the criteria for selecting delivery agents, although they had had no formal schooling. Only half of the trials ( $n = 14$ ) reported the gender of the NSPs; of these, all included females (100%) and the majority included only females (64.3%). Only three trials reported the age of the NSPs, which averaged 35 years (range = 30–50).

Mental health specialists had diverse roles in these treatments, most commonly during trial evaluation (100%), followed by training and supervising NSPs (66.7%), receiving referrals (25.9%), providing medication (14.8%), and sending referrals (11.1%) to another specialist to address physical health concerns (e.g., an obstetrician for pregnancy complications).

### How: Implementation Processes Related to How Treatment Was Delivered

Training methods were reported by 18 trials. The majority of programs (77.8%) used a mixed methods approach to train NSPs; others reported only using didactics. The mixed approach typically involved an intensive period of didactics led by a trainer in face-to-face format, allowing the NSP to learn about the program or counseling skills, or both, which was followed by the opportunity to practice skills through role plays with other NSPs or patients,

or both, during a pilot phase. A total of 17 trials specified the duration of their training period, which varied from 3 hours to 2 months. Overall, training lasted a mean of 78.82 hours (95% CI = 21.81–135.84); it lasted a mean of 53.80 hours (95% CI = 31.72–75.84) when the one outlier (Patel et al. 2010) was excluded in which training lasted 2 months because it covered skills that went beyond psychological treatment (e.g., case management). No trials reported conducting a formal evaluation to examine the competency of NSPs, or whether certification was provided. Only five trials reported compensating NSPs, which typically involved providing either a per diem or reimbursement for relevant costs, such as travel; in two trials, the NSP role was voluntary.

The format for supervision was reported by 15 trials. All trials conducted supervision in person, and almost half of these supplemented this supervision with telephone (46.7%) or Skype (40.0%) support. Supervision was conducted in groups (86.7%) and/or individually (66.7%)—some trials included both group and individual supervision. Supervision methods were reported in 19 trials and typically involved discussing a particular case (63.1%), observing a session (26.3%), or listening to an individual session via audio (10.5%), or some combination of these methods. Seventeen trials reported who conducted supervision and how often. These trials reported that an expert specialist provided supervision, either alone (76.5%) or with others (17.6%), such as other lay counselors or staff from nongovernmental organizations; only one trial exclusively used peers to conduct supervision (5.9%). Supervision was most often conducted weekly (76.5%); in other trials, ad hoc supervision was conducted when required (17.6%) or supervision occurred monthly (5.9%).

Almost three-quarters of trials ( $n = 18$ ) reported using a manualized treatment strategy; 65% of trials used a phase- or session-specific sequence; and 40% used booster sessions. In all trials, treatment was delivered face to face; two (7.4%) also used the telephone. The majority of trials exclusively used an individual (51.9%) format; 37.0% used group formats; 11.1% used both.

Twenty-six trials provided information on treatment duration. When all 26 trials were included, the mean duration was 10.19 weeks (95% CI = 6.92 to 13.51); when the four outliers were excluded, treatment duration was 9.05 weeks (95% CI = 7.43 to 10.58) (Dybdahl 2001; Gao et al. 2015, 2010; Rahman et al. 2008). A total of 22 trials (81.5%) reported on the mean number of intended sessions, which was 9.59 (95% CI = 7.61–11.59); one trial (Bolton et al. 2014b) explicitly stated that sessions were intentionally varied (i.e., because they were based on an individual's symptoms) and, therefore, it was not included in these analyses. Analyses of the number of intended sessions without the outliers (Bolton et al. 2003; Gao et al. 2015, 2010; Milani et al. 2015; Patel et al. 2010; Tiwari et al. 2010) showed a slight decrease to 9.30 sessions (95% CI = 7.94–10.78). Twenty-one trials reported the intended duration of each session, which was approximately 1 hour (mean = 63.45 min, 95% CI = 52.51–74.42); without the outliers (Bass et al. 2013, Bolton et al. 2003, Chen et al. 2000, Gao et al. 2010, Tiwari et al. 2010), this decreased to 56.88 min (95% CI = 50.12–63.78). However, the actual indicators of treatment delivery were described by only a handful of trials: 7 trials reported the number of sessions actually delivered (mean = 6.84, 95% CI = 3.11–10.61) and the duration of sessions was reported by one group-based therapy, which ranged from 60 to 90 minutes (Singla et al. 2015). A total of 23 trials

reported the proportion of individuals who completed the entire or a significant amount of the psychological treatment (mean = 79.6% participants).

### **Where: Implementation Processes Related to Treatment Setting**

The psychological treatment setting was reported by 26 trials. Half of the treatments were delivered in the community (50.0%)—for example in schools, at community meetings, and outdoors; 38.4% were delivered at primary care centers; and 26.9% were delivered in homes. Forty percent of the 26 trials provided a rationale for why a particular setting was selected, and most reasons related to enhancing accessibility for the target population. Three trials reported the relevant barriers and facilitators of their settings: The convenience of a location was cited as facilitating psychological treatment; barriers cited were interruptions from the community, weather, and a lack of privacy for conducting individual sessions.

### **The Effectiveness of Psychological Treatments for Common Mental Disorders Delivered by Nonspecialist Providers in Low- And Middle-Income Countries**

The most common outcome assessment tools used for depression were the Hopkins Symptom Checklist (Derogatis et al. 1974) and the Edinburgh Postnatal Depression Scale (Cox et al. 1987), each of which were used in 6 of the 19 (32%) assessments of depression outcome. The tool most commonly used to assess posttraumatic stress was the Harvard Trauma Questionnaire (Mollica et al. 1992), which was used in 6 of the 8 (75%) assessments of outcomes for patients with posttraumatic stress disorder. The most common assessment tool for mixed anxiety/depression was the Hopkins Symptom Checklist, which was used in 2 of the 5 (40%) assessments. The most commonly used tool for assessing outcomes among patients with anxiety was the Hopkins Symptom Checklist, which was used in all three (100%) assessments. The average primary endpoint was reached in 3.33 months (95% CI = 2.52–4.19), with a range from 2 weeks to 6 months.

Because we restricted our analyses to continuous outcomes, consistent with our alignment with the transdiagnostic approaches that are implicit as the guiding principles of this review, authors whose publications included only dichotomous outcomes or had missing information on means or standard deviations were asked to provide details. Three trials were subsequently dropped from the meta-analyses due to incomplete information, leaving a total of 24 trials for these analyses. The final comparisons included 19 outcomes for depression, 8 for trauma, 5 for mixed anxiety/depression, and 3 for anxiety.

Figure 6 presents the forest plots of the effectiveness analyses. The SMD for the 24 primary outcomes was 0.49 (95% CI = 0.36–0.62), favoring the intervention with the inconsistency measure  $I^2 = 83\%$ , suggesting substantial heterogeneity among trials (Figure 6a). Additional pooled estimates were calculated for each CMD (Figure 6b) for 35 primary and secondary outcomes. For the 19 depression outcomes, the SMD was 0.46 (95% CI = 0.33–0.59,  $I^2 = 73\%$ ). For the 8 trauma outcomes, the SMD was 0.47 (95% CI = 0.17–0.76,  $I^2 = 86\%$ ). For the 5 mixed anxiety/depression outcomes, the SMD was 0.65 (96% CI = 0.31–0.99,  $I^2 = 90\%$ ). For the 3 anxiety outcomes, the SMD was 0.24 (95% CI = 0.09–0.39,  $I^2 = 0\%$ ). The test of subgroup differences among the outcomes was not significant ( $\chi^2 = 7.51$ ,  $p = 0.06$ ,  $I^2 = 60.1\%$ ). In the leave-one-out analyses, the removal of the largest trial (Patel et al. 2010)



did not substantially change the SMD for all outcomes (0.46, 95% CI = 0.34–0.58) or for mixed anxiety/depression (0.59, 95% CI = 0.02–1.16). The removal of the trial with largest effect sizes (cognitive processing therapy in the Democratic Republic of the Congo, Bass et al. 2013) reduced the SMD for posttraumatic stress (0.37, 95% CI = 0.16–0.57) and mixed anxiety/depression (0.48, 95% CI = 0.17–0.80); its removal also moderately reduced inconsistency (overall  $I^2 = 77%$ ; posttraumatic stress  $I^2 = 65%$ ). Removal of the Burundi posttraumatic stress trial (Yeomans et al. 2010), which compared trauma-related psychoeducation with reconciliation workshops and which was the only trial that showed poorer outcomes for the psychological treatment arm, improved the SMD for mixed anxiety/depression (0.80, 95% CI = 0.49–1.12,  $I^2 = 88%$ ).

Exploratory analyses showed that the trial effect size was significantly related to the summed score of the number of all specific elements (Pearson's  $r=0.383$ ,  $p=0.048$ ) and nonspecific elements ( $r=0.474$ ,  $p=0.012$ ). We evaluated the relative contribution of element domains to the effect sizes in two regression models. The first model (Figure 7a) examined the influence of two independent variables on effect size: the summed score of all specific element domains and the summed score of nonspecific elements. This model ( $F=3.08$ ,  $p=0.037$ ) accounted for 24.1% of the variance in effect size. Although neither variable showed a statistically significant association with effect size, the nonspecific elements domain showed trend-level effects ( $\beta=0.393$ ,  $p=0.076$ ). The second model (Figure 7b) evaluated the effects of five independent variables (total summed scores for four specific element and one non-specific element domain) on trial effectiveness. This model was more robust ( $F=3.62$ ,  $p=0.016$ ) and the five domains explained 46.3% of the variance ( $R^2$ ) in trial effectiveness. The strongest associations were observed for the interpersonal elements ( $\beta=0.442$ ,  $p=0.029$ ), emotional elements ( $\beta=0.415$ ,  $p=0.046$ ), and nonspecific (engagement) elements ( $\beta=0.409$ ,  $p=0.052$ ). None of the independent variables in either model showed evidence of multicollinearity ( $VIF < 2$ ). Figure 7 shows the full results of both models.

## DISCUSSION

The objective of this systematic review was to synthesize the evidence base for implementation processes and the effectiveness of psychological treatments for common CMDs in adults delivered by NSPs in LMICs. We identified 27 trials that met our eligibility criteria, with 35 primary and secondary outcomes. The majority of these trials targeted depression or posttraumatic stress in both urban and rural populations and across 17 LMICs. Two-thirds of the selected trials targeted only women, and many focused on perinatal CMDs. We intended for this synthesis to help inform the ultimate goal of disseminating psychological treatments globally.

### Implementation Processes and Effectiveness

The most common NSPs were community health workers or peers with no formal health-care role who typically belonged to the same community as the beneficiary population. The selection of this type of NSP reflects attempts to utilize local, affordable, and sustainable resources (Fairburn & Patel 2014); the pragmatic considerations inherent to the goal of



integrating mental health care into primary care (Patel et al. 2010); and community attitudes regarding preferred and accepted providers (Singla et al. 2014a). Mental health specialists had diverse roles related to building competency, maintaining quality, assuring safety, and (as researchers) evaluating psychological treatments. On average, the NSPs had approximately 10 days of face-to-face training, and supervision was typically conducted weekly in person, during which individual cases were reviewed with an expert supervisor. Most commonly, treatments were delivered in primary care or community settings in less than 10 sessions, each lasting up to 1 hour and delivered during 2 to 3 months. Most treatments were delivered individually and face to face, with about one-third including a group component. We conclude that these psychological treatments delivered in this way had medium to strong effects on improving outcomes in a range of CMDs.

In addition, the treatments distilled in this review comprised a set of elements, including nonspecific (engagement) elements and specific elements, spanning behavioral, interpersonal, cognitive, and emotional domains. The ultimate goal of dissemination is to identify a parsimonious set of elements that can, either alone or in combination, produce optimal clinical outcomes and are backed by a sound theory of change and some evidence of mediation (Murray & Jordans 2016). One or more nonspecific elements, typically empathy or collaboration, were included in all treatments. The five most commonly used specific elements across domains were (a) eliciting or identifying social support; (b) engaging in problem-solving; (c) identifying or eliciting affect, or both; (d) linking affect to events; and (e) identifying thoughts. Our taxonomy cuts across treatment classes, as intended, and is aligned with both the distillation literature on common elements and the methodologies used in other studies (Becker et al. 2015, Bolton et al. 2014b, Chorpita & Daleiden 2009, Chorpita et al. 2007, Michie et al. 2013). The taxonomy we developed showed modest to good internal consistency within domains, strong interrater reliability, and covered both nonspecific and domain-specific elements. The completeness and face validity of the list of elements and their organization was confirmed by trial authors and experts in psychological treatment. Our exploratory analyses of the contribution of elements to the effect sizes of psychological treatments found that the five domains of elements explained 46% of the variance in effect size. Both specific and nonspecific elements independently predicted trial effectiveness, highlighting the importance of both types of elements in treatment. The most common in-session techniques used were psychoeducation, giving praise, and assigning homework. Psychoeducation by itself constituted a treatment class in some trials but also was used as a technique in many more trials.

### **Implications for the Dissemination of Psychological Treatments**

This review highlights several key implementation processes for treating CMDs. These include using a limited number of nonspecific and specific elements delivered by briefly trained NSPs over a few sessions in routine health-care and community settings to populations with large treatment gaps resulting from both demand and supply-side barriers. These findings have important implications for disseminating psychological treatments globally, including in HICs where these treatments are typically packaged by theoretical classes (e.g., interpersonal psychotherapy or cognitive behavioral therapy) for specific disorders; require long periods of training, which is delivered by mental health professionals

in mental health facilities; and where brief manualized treatments typically range from 12 to 20 sessions. Despite these differences, our effect sizes in targeting CMDs are similar to effect sizes from a review of predominantly HIC trials with specialist-delivered treatments (Huhn et al. 2014). In addition, nonspecific elements—sometimes referred to as common factors (Barth et al. 2011, Webb et al. 2010)—were related to treatment effectiveness. These results are consistent with recent findings that showed among therapists in training, nonspecific skills (e.g., collaboration, empathy, and warmth) are independent contributors to patients' outcomes (Anderson et al. 2015), in particular for brief treatments (Anderson et al. 2016). The competencies that providers need to deliver these nonspecific elements must be emphasized as a foundation for delivering psychological treatment. Additionally, our regression models highlight the benefits of examining specific elements domains, in particular those targeting interpersonal and emotional mediators. Others (e.g., Cuijpers et al. 2012) have typically aggregated treatment-specific elements and examined their effects as one variable. Although conceptually sound, this may omit some of the variance explained by treatment-specific elements, thus overstating the role of common factors (Webb et al. 2010). Therefore, our findings strongly indicate the need to expand the orthodox definitions of who is considered a mental health-care provider, what constitutes a psychological treatment, and where treatments can be delivered. Our findings point to using relatively simpler treatment protocols as the basis for more widely disseminating empirically supported psychological treatments.

### Limitations of the Evidence

Our review identified an important gender gap in the evidence—that is, the relative lack of psychological treatments for men with CMDs. Two-thirds of the trials in this review exclusively focused on women, with a significant proportion in the remaining one-third also predominantly targeting women. The lack of treatment for men is especially concerning given that men's mental health and behavior, in particular substance abuse and interpersonal violence, have a strong adverse impact on women's mental health (Nayak et al. 2010), and suicide is a more frequent cause of death in men (WHO 2014b). In addition, including both genders may be beneficial, given the mediating pathway of perceived spousal support on psychological well-being (Singla et al. 2015).

Some of the methods used by global mental health innovators to implement psychological treatment in resource-constrained environments may pose challenges for wider dissemination. Thus, there are significant barriers to the wider adoption of such NSP-delivered psychological treatments, including the need for ongoing, structured supervision and adequate training and compensation (Mendenhall et al. 2014). The subgroup of trials that reported on these processes showed a continuing reliance on orthodox, face-to-face methods for training and supervision delivered by experts, which, although reported to be critical to changing behavior in therapy (Beidas et al. 2014), is a significant barrier to scale-up (Fairburn & Patel 2014). The use of digital platforms for training and supervision (Fairburn & Cooper 2011, Fairburn & Patel 2014), the development of standardized measures of competence for NSPs (Kohrt et al. 2015), and demonstration of the reliability and validity of peer supervision (Singla et al. 2014b) all point to potential solutions to addressing some of these barriers. Sustaining NSP-delivered treatments and motivating

NSPs also need attention by developing compensation mechanisms that may work by, for example, professionalizing community health workers, as has been implemented by some countries (Maes & Kalofonos 2013).

An unexpected gap in the literature was the limited utilization of indigenous elements. For example, mindfulness, a practice rooted in South and East Asian culture, was not used by any of the trials. Although this may reflect a bias toward treatments developed in so-called Western contexts, recent research suggests that the effectiveness of treatment does not differ significantly among “homegrown” or “transported” treatments and that their elements are similar (Leijten et al. 2016). Also, adapting psychological treatments for use with culturally distinct populations shows effectiveness similar to that of the original treatments when changes are made in implementation while preserving the treatment’s content (Chowdhary et al. 2014). We did not find any trials of psychological treatments delivered by NSPs that used treatments from the third wave of psychotherapy [such as acceptance and commitment therapy (known as ACT) or mindfulness-based cognitive therapy (known as MBCT)]. These gaps may reflect the fact that these therapies have been delivered by specialists—for example, mindfulness-based stress reduction has been delivered by psychologists in Iran (Seyed-Alinaghi et al. 2012)—or manualized as a self-help therapy—for example, acceptance and commitment therapy is discussed in WHO’s Self Help Plus (WHO 2014a).

There are also limitations to our approach to distilling common elements from treatment packages. First, there are alternative methods for categorizing and coding elements of psychological treatments (e.g., Dickens et al. 2013, Weiss et al. 2016). Although our taxonomy was feasible and had strong face validity and good psychometric properties, there are other approaches that could have been utilized for parsing and coding treatment elements. Second, we do not capture the dose or extent to which elements are applied in the treatments. A psychological treatment that is centered on problem-solving elements (e.g., Chibanda et al. 2014) and a psychological treatment in which problem solving is one of many elements would have been coded similarly in our taxonomy; therefore, our approach does not distinguish between the number of times that problem solving was used and the degree to which it was used singly or in combination with other techniques. Third, although we have been able to extract descriptive information, we cannot infer whether these elements, when dismantled from their original treatment packages, would continue to have a therapeutic effect independent of the other elements in those packages. Thus, we must be cautious about our interpretations regarding significant associations among element domains that were based on summed scores of elements. At best, our analyses of treatment components can help the reader identify which elements are frequently used for psychological treatments delivered by NSPs, thus helping to set a research agenda to identify which elements, or combinations and sequences of elements, exert optimal effects.

Finally, the evidence in this review has been further bolstered by other recent trials (e.g., Chibanda et al. 2016; Patel et al. 2016; Rahman et al. 2016) that demonstrate the value of brief psychological treatments comprising a parsimonious set of elements for adult common mental disorders and delivered by NSPs in routine care settings in diverse populations.

## CONCLUSIONS

This review confirms that innovations in global mental health to improve access to psychological treatments by using low-cost and widely available NSPs are more effective than usual care in LMIC-based settings. These innovations share a number of key treatment components and implementation processes, including the types of elements and techniques, the training and supervision formats for NSPs, and the number of sessions and duration during which the treatment is delivered. These common implementation processes could act as a blueprint for scaling-up these psychological treatments, not just in the LMICs from where our evidence base was generated but globally, with implications for the science of the dissemination of such treatments. Our review also highlights the gap in reporting on relevant implementation processes. Only two trials (Araya et al. 2006, Buttorff et al. 2012) reported an economic evaluation of their psychological treatments, and only one reported on mediators of the treatment's effectiveness (Singla et al. 2015). Given the dearth of information on treatment elements and implementation processes, we recommend that authors of trials systematically report additional details (see Table 2), as has been proposed for complex public health treatments (Hoffmann et al. 2014).

### Checklist of Key Implementation Processes for Psychological Treatments

Future research could evaluate the effectiveness of a parsimonious set of elements bound together by a theoretically sound framework and delivered in a transdiagnostic or stepped-care format; it could also evaluate the mediating pathways of the effectiveness of such composite treatments. Issues that require further examination are which elements may be most effective, including those elements that may be derived from indigenous approaches to mental health problems (Hinton & Kirmayer 2013); to what degree they may be effective; and in which combinations they influence trial effectiveness. Other key research issues include developing and evaluating strategies to address barriers to training and supervision, determining how best to scale-up the dissemination of psychological treatments—for example, possibly by using technology platforms—and evaluating the effectiveness of stepped-care systems based on the severity of the CMD and response of patients (Murray & Jordans 2016). Dissemination and implementation research will be critical during the next decade to translate the wealth of knowledge generated by global mental health innovators and use it to reduce the large gaps in the effective coverage of psychological treatments in populations around the world. We hope this review will stimulate the ongoing debate and research on the innovations needed to disseminate some of the most effective types of mental health care, with the ultimate goal of greatly enhancing their coverage and reducing treatment gaps for CMDs globally.

### Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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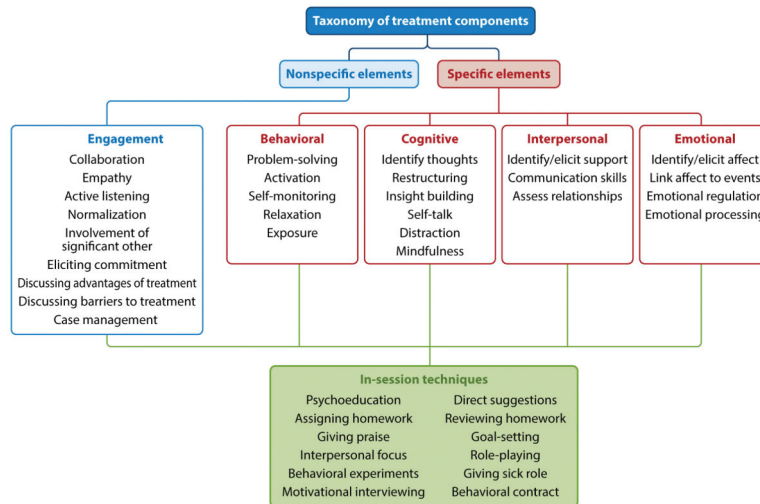
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### SUMMARY POINTS

1. Global mental health researchers have developed innovative delivery frameworks for psychological treatments to reduce the clinical, social, and economic burdens of common mental disorders.
2. This article assesses the effectiveness of psychological treatments delivered by nonspecialist providers in low- and middle-income countries and innovative implementation processes for addressing common mental disorders in adults.
3. Our taxonomy of treatment components cuts across treatment modalities, as trial authors used a variety of common elements and in-session techniques, irrespective of the reported class or classes of psychological treatments.
4. Innovations reflect attempts to utilize local, affordable, and sustainable resources, including delivery agents from the same community, brief treatments with fewer than 10 sessions, and accessible settings.
5. These common implementation processes could act as a blueprint for scaling-up psychological treatments, not just in the low- and middle-income countries from where our evidence base was generated but globally, with implications for the science of the dissemination of psychological treatment.

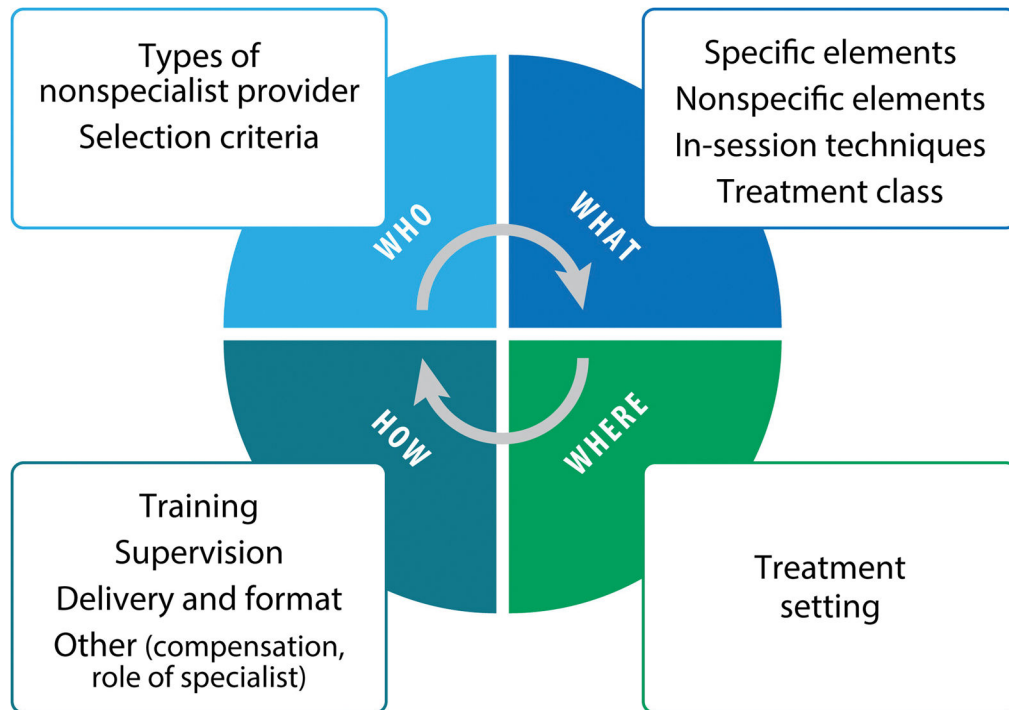
### FUTURE ISSUES

1. It will be important to explore which elements, including indigenous elements, influence the effectiveness of psychological treatments for common mental disorders, and to determine to what degree and in which combinations they are most effective.
2. This examination of treatment components should be extended to psychological treatments for children and adolescents.
3. Key underlying processes should be examined, including conducting trials of treatment mechanisms and mediators of effectiveness, and their potential relationships to treatment elements.
4. Strategies to address barriers to disseminating psychological treatment delivered by nonspecialist providers need to be evaluated—for example, by evaluating digital platforms for treatment implementation and for training and supervising nonspecialist providers; scalable incentives for motivating nonspecialist providers to deliver psychological treatments also need to be determined.
5. The assessment of how a common-elements approach to delivering psychological treatments can be integrated with stepped-care approaches to maximize recovery in patients with common mental disorders.

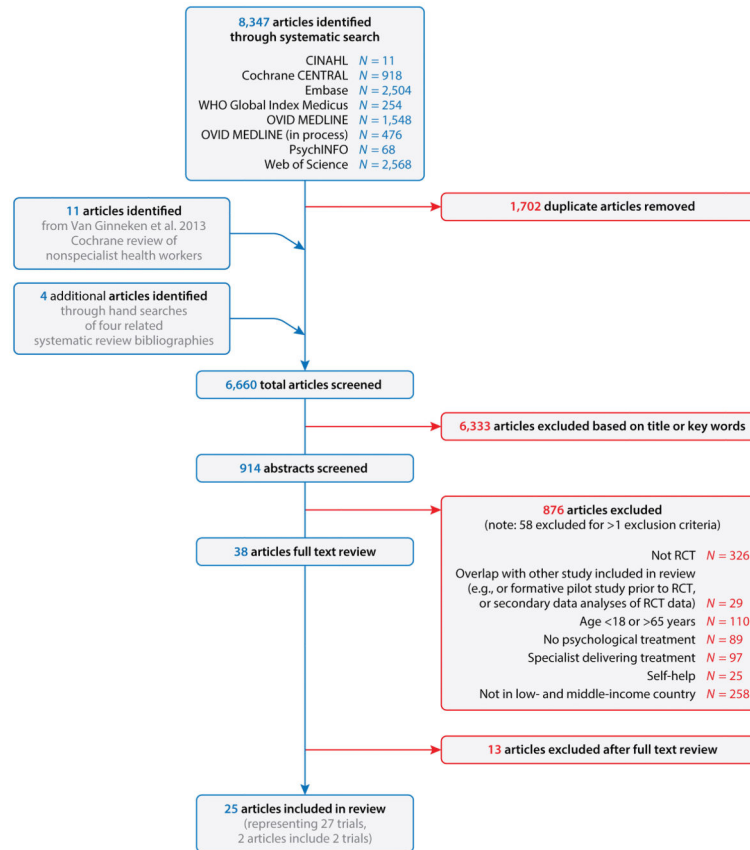


**Figure 1.**  
The taxonomy of treatment components of psychological treatments for common mental disorders delivered to adults in low- and middle-income countries.

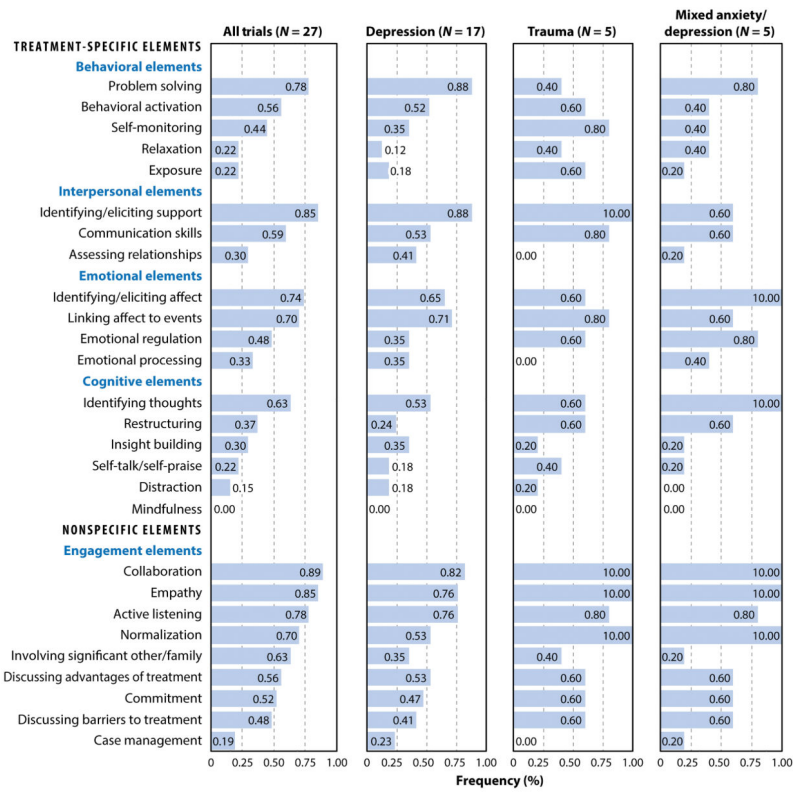




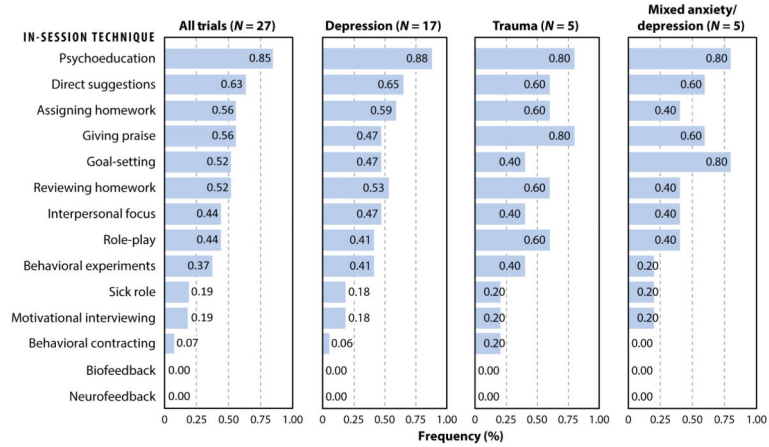
**Figure 2.** Implementation processes related to the who, what, where, and how of delivering psychological treatments in low- and middle-income countries.



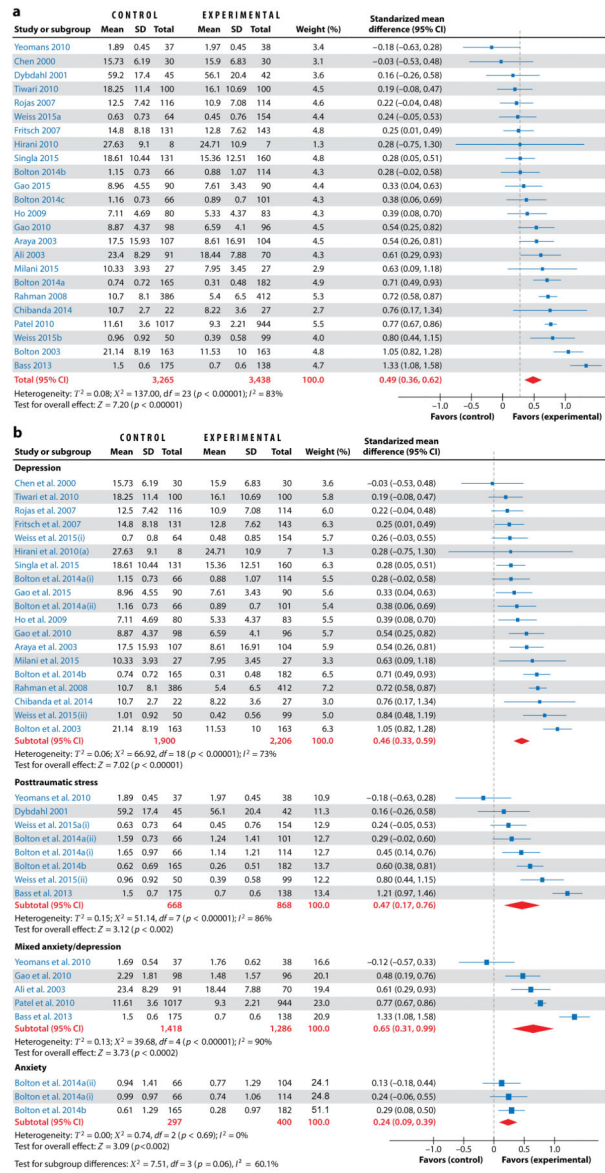
**Figure 3.** Flow chart for identifying eligible articles. Abbreviation: RCT, randomized controlled trial.



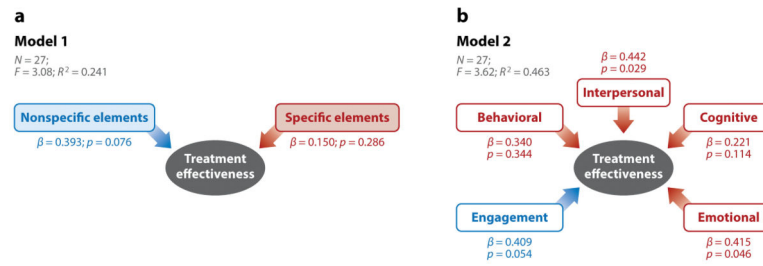
**Figure 4.** Specific and nonspecific elements used to address common mental disorders in 27 trials in low- and middle-income countries.



**Figure 5.** Techniques used in sessions to address common mental disorders in 27 trials in low- and middle-income countries.



**Figure 6.** (a) Forest plot of the effects of psychological treatments on primary outcomes for common mental disorders in 24 trials in low- and middle-income countries. (b) Forest plot of the effects of psychological treatments on outcomes for common mental disorders in low- and middle-income countries by condition ( $N = 35$ ). Abbreviation: CI, confidence interval;  $df$ , degrees of freedom; SD, standard deviation. Bolton 2014a(i): *BMC Psychiatry*, behavioral activation experimental condition versus control; Bolton 2014a(ii): *BMC Psychiatry*, cognitive processing therapy experimental condition versus control; Bolton 2014b, *PLoS Medicine*, common elements treatment approach (CETA) experimental condition versus control; Weiss 2015(i): *BMC Psychiatry*, cognitive processing therapy experimental condition versus control; Weiss 2015(ii): *BMC Psychiatry*, common elements treatment approach (CETA) experimental condition versus control.



**Figure 7.**

The effects of treatment-specific and nonspecific elements on trial effectiveness. (a) Model 1: comparison of specific and nonspecific elements on treatment effectiveness. (b) Model 2: comparison of nonspecific element domain with specific element domain showing effects on treatment effectiveness.  $\beta$  represents standardized beta. Treatment effectiveness is the effect size or standardized mean difference between the intervention and control groups at the primary endpoint.

## Trial characteristics

Table 1

Reference	Secondary papers	Country	Sample size	Trial design	Population (mean age; range)	Recruitment setting	Intervention	Control group
Ali 2003	Gul & Ali 2004, Naeem et al. 2003	Pakistan	161	RCT	Women in the local community (32.6; 18–50)	Home	8 sessions of supportive, cognitive, and problem-solving counseling	Usual treatment
Araya 2003	Araya et al. 2006	Chile	211	RCT	Primary care attendees (42.6; 18–70)	Primary care	7 weekly sessions and 2 booster sessions of psychoeducational group and pharmacotherapy program for patients with severe or persistent depression	Usual treatment
Bass et al. 2013	Hall et al. 2014	Congo	313	RCT	Female survivors of sexual violence (<35; *)	Mental health clinics	1 individual session and 11 group sessions of cognitive processing therapy	Individual support
Bolton et al. 2014a	Magidson et al. 2015, Murray et al. 2014, Weiss et al. 2016	Iraq	347	RCT	Survivors of systematic violence (>17; 39.8 *)	Home, community	12 sessions of brief behavioral activation treatment for depression (psychotherapy); 12 sessions of cognitive processing therapy	Wait-list control
Bolton et al. 2014b	Murray et al. 2014; Weiss et al. 2016	Thailand	180	RCT	Burmese refugees and survivors of violence (35.5; >17 *)	Home, community	7–13 sessions of cognitive behavioral therapy	Wait-list control
Bolton et al. 2003	Bass et al. 2006, Verdelli et al. 2003	Uganda	326	cRCT	Local men and women (46.5; 26.7–66.1)	Home, community	16 sessions of interpersonal psychotherapy	Usual treatment
Chen et al. 2000	NA	Taiwan	60	RCT	Primary care attendees (29.1; 19–40)	Primary care	4 sessions of support group	Usual treatment
Chibanda et al. 2014	Chibanda et al. 2011	Zimbabwe	49	RCT	Postpartum mothers (25; 18 *)	Primary care	12 sessions of group problem-solving therapy	Usual treatment
Dybdahl 2001	Dybdahl & Pasagic 2000	Bosnia	87	RCT	Bosnian displaced mother-child dyads (30.7; 20–44)	Home, community, refugee camp	Weekly psychosocial discussion groups	Enhanced usual care



Reference	Secondary papers	Country	Sample size	Trial design	Population (mean age; range)	Recruitment setting	Intervention	Control group
Fritsch 2007	NA	Chile	274	RCT	Primary care attendees (NA; 18–70)	Primary care	Regular telephone contact with patients	Usual treatment
Gao et al. 2010	Gao et al. 2012	China	194	RCT	New mothers (28.4; 21–35)	Primary care	2 groups sessions of IPT	Enhanced usual care
Gao et al. 2015	Gao et al. 2014	China	180	RCT	Pregnant mothers (28.6; *)	Primary care	1 session of psychoeducation	Usual treatment
Hirani et al. 2010a	Hirani et al. 2010b	Pakistan	15	cRCT	Local women (NA; 25–35)	Community	8 sessions of behavioral group counseling; 8 sessions of economic skill-building	Usual treatment
Ho 2009	NA	Taiwan	163	RCT	Primary care attendees (29.3; 20–35)	Primary care	1 session of education program	Usual treatment
Kaaya 2013	Antelman et al. 2007	Tanzania	188	RCT	HIV-positive pregnant mothers (26.0, >17*)	Primary care and antenatal clinics	6 sessions of problem-solving therapy	Usual treatment
Milani et al. 2015	NA	Iran	54	RCT	Postpartum mothers (28.0; *)	Primary care	12–18 sessions of telephone support	Usual treatment
Patel et al. 2010	Buttorff et al. 2012, Chatterjee et al. 2008	India	1,961	cRCT	Primary care attendees (26.3; >16*)	Primary care	6–12 sessions of IPT	Enhanced usual care
Rahman et al. 2008	(Rahman 2007, Rahman & Creed 2007)	Pakistan	798	cRCT	Pregnant mothers (26.7; 16–45)	Home	16 sessions of CBT	Enhanced usual care
Rojas 2007	Araya 2003	Chile	230	RCT	Primary care attendees (26.6; *)	Primary care	8 sessions of group CBT	Usual treatment
Rotheram-Borus, 2014	Richter et al. 2014, Rotheram-Borus et al. 2011	South Africa	287	cRCT	HIV-infected women (26.5; *)	Primary care and HIV clinics	8 sessions of CBT	Usual treatment
Singla et al. 2015	Singla & Kumbakumba 2015	Uganda	291	cRCT	Mothers with children <3 years (27.4; 21–49)	Home, community	12 sessions of an integrated parenting program; 6 focused on common maternal mental disorders using IPT, CBT, and MI-based techniques	Wait-list control
Tiwari et al. 2010	NA	China	200	RCT	Chinese women survivors of intimate	Schools, community	12 sessions of telephone social support	Usual treatment

Reference	Secondary papers	Country	Sample size	Trial design	Population (mean age; range)	Recruitment setting	Intervention	Control group
Weiss et al. 2015	Murray et al. 2014	Iraq	218	RCT	Torture survivors (CPT, 40.3; CETA-42.8) (38.1; >17 <sup>*</sup> )	Community	8–12 sessions of CBT; 12 sessions of CPT	Wait-list control
Wijesinghe 2015	NA	Sri Lanka	133	RCT	Patients with a recent snakebite (42.1; >17 <sup>*</sup> )	Emergency department	1 session of CBT; 1 session of psychological first aid and psychoeducation	Usual treatment
Yeomans et al. 2010	NA	Burundi	76	RCT	Internally displaced persons (38.6; >17 <sup>*</sup> )	Community	3-day psychoeducation workshop	Wait-list control

\* Range not available.

Abbreviations: CBT, cognitive behavioral therapy; CETA, common elements treatment approach; CMD, common mental disorder; CPT, cognitive processing therapy; cRCT, cluster randomized controlled trial; IPT, interpersonal psychotherapy; MI, motivational interviewing; NA, not available; RCT, randomized controlled trial.

Table 2

## Checklist of Key Implementation Processes for Psychological Treatments

Where?	What?
• Treatment setting (or settings)	• Theoretical orientation
• Rationale for the setting(s)	• Treatment class
• Barriers and facilitators related to the setting	• Treatment components
	– Elements
	◆ Nonspecific
	◆ Specific
	– In-session techniques
	• Description of adaptations for specific context or target group
<b>Who?</b> <i>Delivery agent</i>	<b>How?</b> <i>Training</i>
• Who delivered the treatment?	• Who conducted training?
• Selection criteria	• How long was the of training? (number of hours)
• Rationale for the selection	• What was the format of the training? (e.g., didactics, practice, apprenticeship model)
• Demographics: age, gender, previous experience	• What were the procedures for assessing competence?
• Barriers and facilitators related to the choice of delivery agent	<i>Supervision</i>
• Compensation for the delivery agent	• Who conducted supervision?
• Certification processes	• What was the format of the supervision? (in-person or remote; group versus individual)
<i>Expert</i>	• What supervision methods were used? (e.g., case reviews)
• What, if any, was the role (or roles) of the expert specialist?	<i>Treatment characteristics</i>
	• How was treatment delivered? (What format was used?) (in-person or remote; group versus individual)
	• How long was the treatment? (intended duration versus actual)
	• How many sessions? (intended versus actual; minimum and maximum; booster sessions)
	• How long were the sessions? (intended versus actual; minimum and maximum)
	• Were sessions delivered in a temporal sequence?
	• Was the treatment manualized? (if so, provide URL)
	• How was the quality of therapy assessed?
	• What is the number or percentage of individuals who completed the entire treatment package?