

Systematic reviews of occupational therapy interventions: summarizing research evidence and highlighting the gaps

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As services are commissioned based on effectiveness, occupational therapists are under pressure to demonstrate the efficacy of their interventions. Occupational therapists also need to know that the interventions they are providing are effective. Robertson et al (2013) demonstrated that the occupational therapy literature is important for clinicians and is an essential part of their practice. However, as more research is published, it can be increasingly time-consuming and confusing for clinicians to keep abreast of the current literature. Occupational therapy-related research may be published in different forms, in a range of locations, and be of varying methodological quality. Furthermore, readily available published studies that investigate occupational therapy efficacy may not be sufficiently powered, or may lack external validity, when applied to different clinical settings. When well conducted, systematic reviews provide a useful way of synthesizing and evaluating the evidence on a particular topic and, to some extent, provide a solution to this problem. This paper focuses upon reviews of randomized controlled trials, as these provide the highest quality of evidence on the question of a particular intervention's effectiveness. The merits of reviews of qualitative studies are also considered, together with the possibility of combining more than one type of review.

Background

The Cochrane Library holds the open access peer-reviewed *Database of systematic reviews* (The Cochrane Collaboration 2013a) and currently includes several completed reviews of occupational therapy. In addition, systematic reviews of occupational therapy, or interventions relevant to the field of occupational therapy, are published in a range of peer-reviewed journals (Bennett et al 2013), including occupational therapy, social science, psychology, medical, and rehabilitation publications. In August 2013, the OTseeker database (Bennett et al 2007) listed 1,285 systematic reviews, collated from a wide range of journal types, relevant to the field of occupational therapy. Over the last decade, there has been a sharp increase of published systematic reviews, and prospective registration is advised to ensure transparency in review process and outcomes (Booth et al 2011). Clear guidance is available for conducting a systematic review of interventions (Higgins and Green 2008), and the PRISMA statement provides guidelines on how to report them (Moher et al 2009). Robust reviews, conducted and reported in such a way, can provide a summary of the available evidence on a topic, according to specific inclusion and exclusion criteria; they can, in turn, inform clinicians and policy makers, leading to the development of local and national guidelines. The College of Occupational Therapists' [COT] *Practice guidelines development manual* (COT 2011), accredited by the National Institute of Clinical Excellence (NICE), recommends a systematic approach to reviewing the literature when developing occupational therapy guidelines.

A potential criticism of performing systematic reviews of occupational therapy interventions is an absence of good-quality randomized controlled

trials. Subsequently, it is possible that a systematic review may be 'empty', where either no studies are included, or in the absence of studies of sufficient quality, occupational therapy cannot be recommended (Deane 2006). However, one might also conclude that a gap in the literature, highlighted by a systematic review, provides a useful reference point for designing a study of effectiveness following CONSORT guidance (Schulz et al 2010). Furthermore, the results of a systematic review that demonstrates evidence gaps or the need for more research in a specific area can provide a valuable summary for submission of a grant application, and identify a need for further research. Where there are sufficient numbers of good-quality, homogeneous studies included within a review, the results of the studies can be combined in a meta-analysis, which is the statistical pooling of data from two or more studies.

Meta-analysis can demonstrate larger effect sizes where there are low participant numbers within each included study. However, as occupational therapy is a complex intervention (Creek et al 2005), it is likely that there will be sufficient heterogeneity amongst the included studies to make a meta-analysis at best meaningless, and at worst misleading. In many cases, a narrative synthesis will be more appropriate. A narrative synthesis of included studies tells a trustworthy story and is an approach to combining the findings of the included studies. Text and words are primarily used to describe and summarize the studies and their results (Popay et al 2005). Murphy et al (2009) have highlighted some specific considerations for systematic reviews of occupational therapy interventions. These include the inclusion of relevant papers and the evaluation of papers with an expanded hierarchy of evidence.

What is a systematic review?

A systematic review asks a 'clearly formulated research question that uses systematic and explicit methods to identify, select and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyse and summarize the results of included studies' (The Cochrane Collaboration 2013b). A systematic review, therefore, presents the available high-quality evidence on a particular subject in a concise and digestible form.

An overview of the review process

The Cochrane handbook for systematic reviews of interventions (Higgins and Green 2008) provides detailed instructions on each stage of a systematic review. The following is a brief overview of the stages involved.

Prior to starting a review, it is important that time and resources, including access to relevant databases, full-text access of papers, and library access for interlibrary loans, are available. A dedicated team of reviewers with defined roles is required, and team members need to have a range of experience and

expertise. The research question needs to be considered and structured around the population, intervention, comparator, and outcomes. During the preparation phase, the scope is finalized and the protocol developed and registered with the international prospective register; the PROSPERO (Centre for Reviews and Dissemination [CRD] 2013).

To minimize bias, each review stage should be conducted by at least two people. The search of each of the predetermined databases, using predefined search terms, will reveal the papers for consideration in the review. The titles and abstracts may be combined within a reference manager library for ease and any duplicates removed. A robust search strategy is essential to ensure no relevant studies are missed. References of all included studies should be checked for further potentially relevant studies, and authors of included studies contacted for further details. Finally, a search of grey or unpublished literature is recommended (Higgins and Green 2008). This may include theses, trials databases, and conference abstracts.

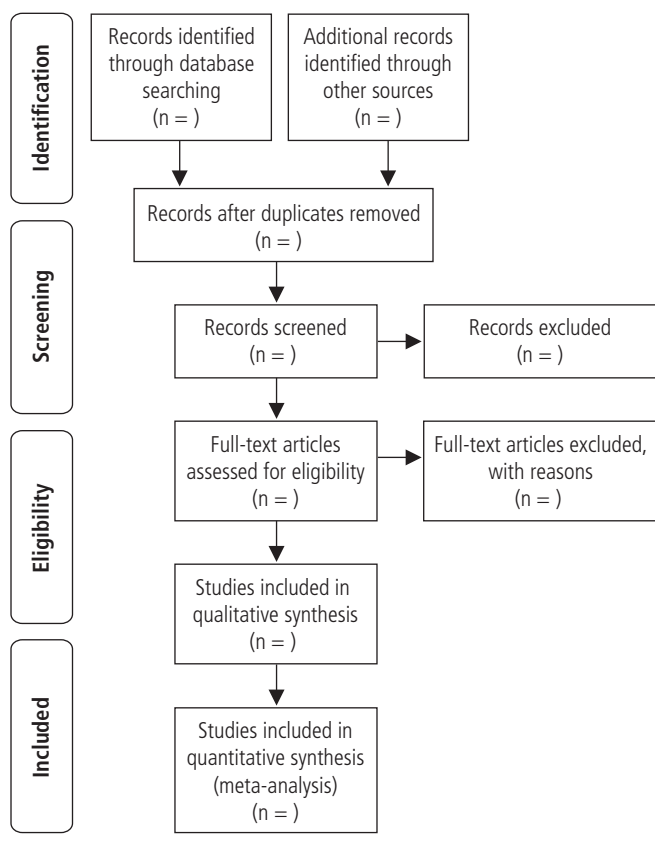
Studies are selected according to the inclusion and exclusion criteria in the protocol. Initially, the selection is made on the basis of study title and abstract. The full text of papers highlighted by this process are retrieved and read, whilst being considered for inclusion against the predetermined criteria. The quality of each included study must be assessed, according to the assessment tool highlighted in the protocol, which assists with maintaining objectivity in the review. The data from each study are then extracted into tables.

Combining the results of several studies creates larger samples and yields more robust results than would be possible from any single study. It increases the power and may also increase the external validity due to the variation in the studies. A meta-analysis may be performed if appropriate, ideally after a narrative analysis. Access to a statistician is advisable, particularly if a reviewer is unfamiliar with types of data and effect measures.

Disseminating the review

The PRISMA statement (Moher et al 2009) provides guidance for reporting a systematic review, and provides a checklist and flow diagram (see Fig. 1). To give a clear overview, in a standardized format, of all studies screened, assessed for eligibility, and included in the review. The reasons for excluding studies are reported, making it possible to see why a particular paper was not included. The PRISMA checklist for abstracts (Beller et al 2013) gives helpful guidance for the preparation of conference or journal abstracts. Additionally, a report should be submitted to the funder and perhaps to the organization in which it was carried out, such as the hospital trust. A systematic review may also form the whole or part of a thesis, and later be prepared in a suitable format for journal submission. Many journals, including the *British Journal of Occupational Therapy*, welcome the submission of high-quality systematic reviews relevant to the journal's subject area.

Fig. 1. PRISMA flowchart template for a systematic review (Moher et al 2009).



Further considerations

Systematic reviews of qualitative research can give readers access to topics such as patient/client and practitioner experiences of, or the barriers and facilitators to, implementing an occupational therapy intervention. They move beyond summarizing data, synthesizing individual qualitative research studies ‘that relate to a specific topic or focus in order to arrive at new or enhanced understanding about the phenomenon under study’ (Paterson 2012). However, synthesizing qualitative and quantitative evidence can be challenging, and a range of approaches are available (Dixon-Woods et al 2005). Tomlin and Borgetto (2011) presented an evidence-based practice model that outlines the synthesis of a range types of evidence, including syntheses of qualitative studies, meta-analyses of both experimental and outcome research, and systematic reviews of descriptive studies. They proposed that the highest level of evidence would be a ‘mega-synthesis’. While this may seem challenging, their three-sided pyramid model of occupational therapy evidence can guide practitioners in reaching decisions about their services or interventions.

Often, the first time that a clinician may conduct a systematic review is during postgraduate research. However, as research is becoming more important within clinical roles, and as therapists may pursue a research career pathway, reviews may be conducted within clinical and academic settings in multi-disciplinary teams. An occupational therapist may be

invited to be part of a review team due to their clinical skills, despite having little previous practical experience of the review process.

Occupational therapy practitioners and academics should actively seek to form teams that address the areas of need highlighted by practitioners. For occupational therapists with little experience of the review process, it is important to become familiar with the steps identified above and to identify a mentor with experience of the review methodology. Accessing appropriate training in conducting systematic reviews and gaining critical appraisal skills would mean that a potential reviewer has the expertise required to undertake such research.

Conclusion

In recent years there has been an increase in the number of published systematic reviews applicable to occupational therapy (Bennett et al 2013). Rigorous systematic reviews are useful for clinicians, commissioners, and policy makers. When a review demonstrates gaps in the evidence, this may provide a case for further research and can be useful when submitting funding applications. Systematic reviews should be conducted in a transparent way, with the protocol published in an accessible database prior to the review process commencing. Whilst this opinion piece has primarily focused on quantitative reviews, other types of systematic reviews and syntheses can also inform occupational therapy practice. Occupational therapists may conduct systematic reviews as part of their role, and clinical and academic occupational therapists should consider forming review teams to combine their specialist knowledge. Training courses are helpful, following appropriate guidance is essential, and it may be useful to identify a mentor for guidance with the process.

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