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Systematic reviews of occupational therapy interventions:

Summarising research evidence and highlighting the gaps

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Abstract

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

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

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 database OTseeker (Bennett et al 2007) listed 1285 systematic reviews relevant to the field of occupational therapy, which have been collated from a wide range of journal types. There has been a sharp increase over the last decade 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, which in turn can inform clinicians and policy makers leading to development of local and national guidelines. The College of Occupational Therapists', National Institute of Clinical Excellence accredited Practice Guidelines Development Manual recommends a systematic approach to reviewing the literature when developing occupational therapy guidelines (College of Occupational Therapists 2011).

A potential criticism of performing systematic reviews of occupational therapy interventions is an absence of quality randomised controlled trials. Subsequently, it is possible that a systematic review may be "empty", with no included studies or conclude that in the absence of studies of sufficient quality, that 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). In addition, the results of a systematic review which demonstrates evidence gaps or need for more research in a specific area can provide a valuable summary for submission of a grant application, demonstrating a need for further research. Where there are sufficient numbers of 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 numbers within each included individual 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 review will be more appropriate. A narrative synthesis of included studies tells a trustworthy story and is an approach to combining the findings of all studies. Text and words are primarily used to describe and

summarise 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 including inclusion of relevant papers and evaluating 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 summarise 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 digestible form.

An overview of the review process

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

Prior to starting a review, it is important that time, resources including access to relevant databases, full text access of papers, and library access for interlibrary loans are available. A dedicated team of reviewers will be required with defined roles and team members may 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 finalised, the protocol developed and registered with the international prospective register; the PROSPERO database (CRD 2013).

To minimise bias, each review stage should be conducted by at least two people. The search of each of the predetermined individual 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 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 done 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 assessed according to the assessment tool highlighted in the protocol which assists with maintaining objectivity in the review. The data from each study is then extracted into tables.

Combining the results of several studies creates larger samples and yields a more robust result than would be possible from one study. It increases the power and may increase the external validity due to 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 which includes a checklist and flow diagram (see Figure 1) to give clarity to the numbers of studies screened, assessed for eligibility and included in the review. Reasons for excluding studies are reported making it possible to see why a particular paper was not included in a review. The PRISMA checklist for abstracts (Beller et al 2013) gives guidance which is helpful in preparation of conference or journal abstracts. Additionally, a report should be submitted to the funder and perhaps to the organisation in which it was carried out, such as the hospital trust. A systematic review may also

form the whole or part of a thesis. Many journals welcome the submission of systematic reviews and the British Journal of Occupational Therapy welcomes reviews relevant to occupational therapy.

Further considerations

Systematic reviews of qualitative research can give access to topics such as patient and practitioner experiences of, or the barriers and facilitators to implementing, an occupational therapy intervention. They move beyond summarising data, synthesising 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, synthesising qualitative and quantitative evidence can be challenging and a range of approaches are available (Dixon-Woods 2005). Tomlin and Borgetto (2011) present an evidence based practice model which outlines the synthesis of a range types of evidence which includes syntheses of qualitative studies, meta-analyses of both experimental and outcome research as well as systematic reviews of descriptive studies. They propose 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.

The first time that a clinician may conduct a systematic review is often at a postgraduate student level. However, as research is becoming more important within clinical roles and 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 as part of a review team due to their clinical skills, despite having little previous practical experience of the review process.

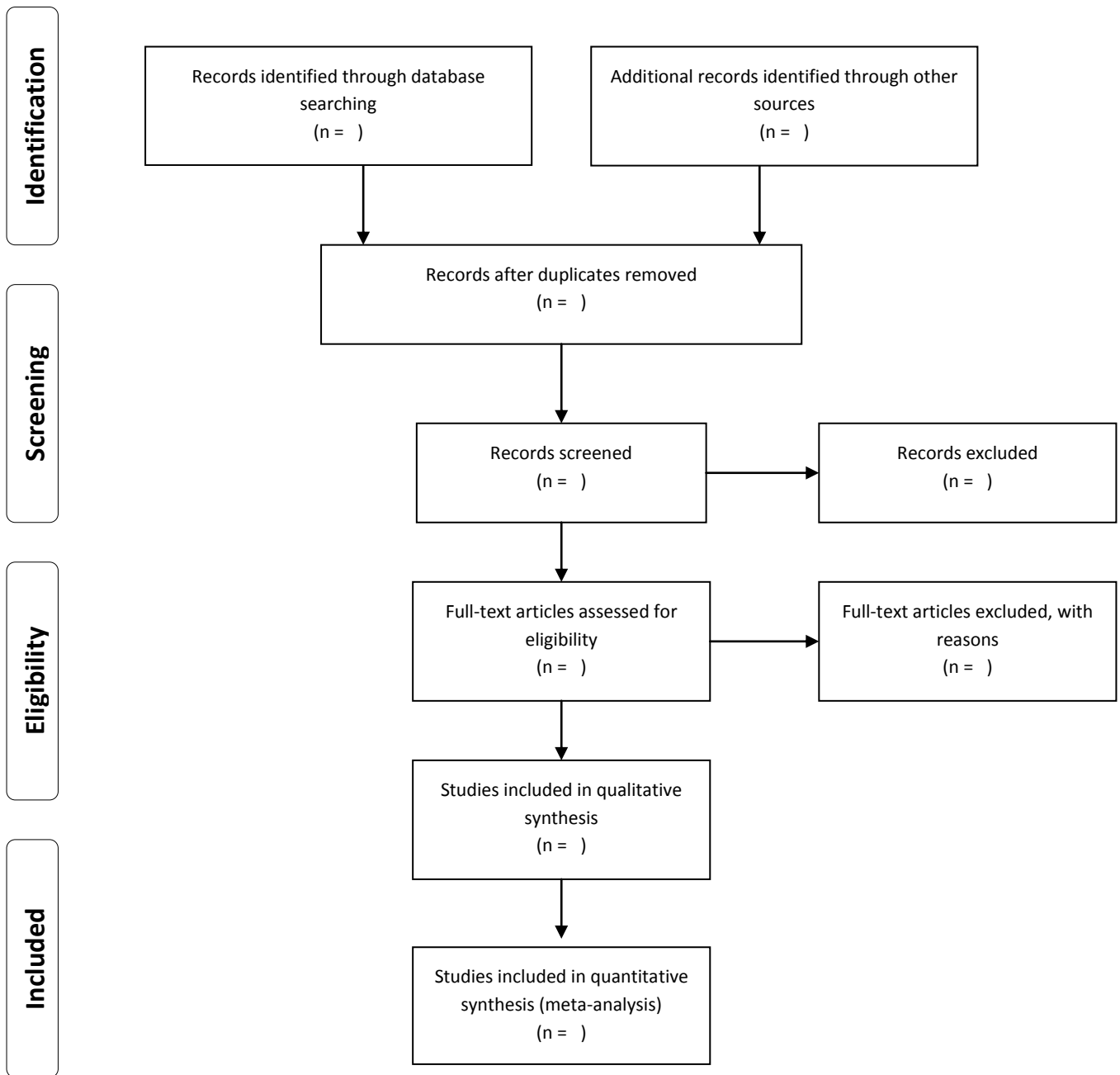
Occupational therapy practitioners and academics should actively seek to form teams to address areas of need highlighted by practitioners. For occupational therapists with little experience of the review process, it is important to become familiar with the steps identified above and to identify a mentor with experience of the methodology. Accessing appropriate training in conducting

systematic reviews and critical appraisal skills would mean that a potential reviewer has the required expertise.

Conclusion

There has been a rise in the volume of published systematic reviews applicable to occupational therapy each year (Bennett et al 2013). Rigorous systematic reviews are useful for clinicians, commissioners and policy makers. When a review demonstrates gaps in 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 paper has primarily focussed on quantitative reviews, other types of systematic reviews and syntheses can 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 together to combine their specialist knowledge. Training courses are helpful, following appropriate guidance is essential and it may useful to identify a mentor.

Figure 1: The PRISMA 2009 Flow Diagram (Moher et al 2009)



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