

---

## A scoping review protocol on occupational formulation

Lorrae Mynard<sup>1,2</sup>, Ellie Fossey<sup>1</sup>, Louise Farnworth<sup>1</sup> and Genevieve Pepin<sup>3</sup>

### Abstract

**Introduction** The process of linking assessment findings to treatment plans, and clearly communicating clinical reasoning is sometimes referred to as ‘case formulation’. In clinical psychology, case formulation is recognised as a key competency. Recently the term “occupational formulation” has been articulated to describe formulation of a client’s situation using an occupational therapy framework. Occupational therapists are known to sometimes have difficulty with communicating their clinical reasoning, in particular linking theory to practice. The use of formulation within occupational therapy is not well understood and warrants further investigation. This scoping review aims to define occupational formulation and describe its development, evidence-base and use within occupational therapy practice. **Methods and analysis** Arksey and O’Malley’s (2005) steps for scoping reviews will be adopted. All sources of evidence will be included, with no date or language limitations. Searches will be conducted within four databases: OVID AMED, OVID APA PsycInfo, OVID Emcare, and EBSCOhost CINAHL Plus, with additional hand-searching of reference lists. Grey information searches will be used to seek theses and textbooks, as well as advanced and targeted internet searches. Two-stage screening will guide final source selection. Data extraction, quality appraisal and qualitative analysis will be conducted. A consultation phase will support understanding of preliminary findings. **Ethics and dissemination** Ethics approval will not be required. Review findings will be published in an occupational therapy journal and shared in other professional forums.

### Keywords

Conceptualisation, practice process, theory to practice, therapeutic reasoning

Registered on Figshare December 3, 2021

### Introduction

Occupational therapy practice involves complex clinical or therapeutic reasoning processes (Fleming & Mattingly, 1994; Schell & Schell, 2008). Despite clearly articulated conceptual and process models in occupational therapy, many occupational therapists experience difficulties in documenting and communicating assessment findings and plans in a way that is succinct and reflects occupational theory while remaining accessible to clients and members of the multi-

disciplinary team (Parkinson & Brooks, 2021). Recognising that therapeutic reasoning is complex and the reasoning process used by occupational therapists may be unclear, Thompson (2012) explained that both clinical reasoning and case formulation are required to identify an appropriate focus for occupational therapy, and that a formulation may enable both the therapist and client to make sense of the person’s situation, and enhance the person’s engagement with therapy.

---

<sup>1</sup> Department of Occupational Therapy, Monash University

<sup>2</sup> Department of Occupational Therapy, Forensicare

<sup>3</sup> Occupational Science and Therapy, Deakin University

**Corresponding author:** Lorrae Mynard, Department of Occupational Therapy, Monash University, Peninsula Campus Building G, 47-

49 Moorooduc Hwy, Frankston, Victoria, 3199, Australia. Email: [Lorrae.Mynard@Monash.edu](mailto:Lorrae.Mynard@Monash.edu)  <http://orcid.org/0000-0003-2271-1746>

Given there exist some similarities in practice contexts, approaches and skills between clinical psychologists and occupational therapists, it is useful to consider the use of case formulation within clinical psychology. Within clinical psychology literature, case conceptualisation and case formulation are equivalent terms (Godoy & Haynes, 2011; Hass et al., 2020) for the process which provides “a bridge between assessment and treatment phases to guide treatment options (Rainforth & Laurenson, 2014, p. 21)”. Hass, Maupin and Doria (2020) described case formulation as a process focussed on connecting assessment to treatment, comprising “the collection, organisation and interpretation of individual and contextual data to provide a comprehensive picture of clients and their strengths and needs; potential explanations or hypotheses for an individual’s present psychological, interpersonal and behavioural challenges; and possible treatments or interventions (pp. 4-5)”.

Systematic case formulation is described, alongside assessment, diagnostic judgement and treatment planning, as the first component of clinical expertise by the American Psychological Association (2006). Similarly, the British Psychological Society practice guidelines (2017) identify formulation of client needs and problems as one of five core skills of clinical psychologists, which flows from assessment and informs intervention.

As part of a seven-step therapeutic reasoning process, “occupational formulation” was described by Forsyth (2017) as a process in which “an occupational therapist takes all the assessment information for a client and pulls it together in order to create a set of arguments about their unique perspective of their client’s situation (p. 164)”. The following year Brooks and Parkinson (2018) published an opinion piece describing occupational formulation “as a process of making sense of someone’s circumstances that is informed by occupational theories and concepts (p177)” and proposed a theory-based structure for occupational

formulation including occupational influences, occupational presentation and occupational focus. In 2021 the same authors published a comprehensive guide to implementing a Model of Human Occupation (MOHO; Taylor, 2017) based approach to occupational formulation, aiming to bridge the gap between theory and the practice of assessment and treatment (Parkinson & Brooks, 2021).

Given that formulation is recognised as a core competency of psychology practice and an approach that supports linking theory and practice, assessment and treatment, its use within occupational therapy warrants further investigation. The context of interest is the discipline of occupational therapy, not limited to a specific population or clinical focus. The concept of interest is occupational formulation, referring to formulation or conceptualisation of the client’s situation using an occupational framework. It does not include formulation conducted by an occupational therapist using a non-occupational framework.

Preliminary searches conducted in August 2021 of the Joanna Briggs Institute Evidence Synthesis journal and the Cochrane database of systematic reviews found no previous scoping reviews, systematic reviews, or research syntheses on the topic. A preliminary search of EBSCOhost CINAHL Plus located no primary research papers.

A scoping review approach has been selected to enable systematic mapping of concepts and types of evidence, to inform practice and identify research gaps (Colquhoun et al., 2014; Daudt et al., 2013). This scoping review aims to define occupational formulation, and describe its development, evidence-base and use within occupational therapy practice.

## Methods and analysis

This scoping review will follow the methodological steps described by Arksey and O’Malley (2005): identifying the research question; identifying relevant studies; study selection; charting the data; collating,

summarising and reporting the results; and a consultation exercise. The additional recommendations proposed by Levac et al. (2010), guidelines from the Joanna Briggs Institute (Peters et al., 2020) and the PRISMA extension for scoping reviews (Tricco et al., 2018) have also informed the design.

#### Identifying the research question

As occupational formulation is an emerging concept within occupational therapy, a broad research question has been identified: what is known about occupational formulation and how is it used in occupational therapy?

#### Identifying relevant sources

An academic research librarian was consulted regarding selection of databases and other search platforms, selection of search terms and adjustment of the search strategy for use in each database. Given preliminary searching indicated that limited evidence may exist, all forms of evidence will be included within this review, with no date or language limitations. The term “source” (Peters et al., 2020) will be used in recognition that a range of information (not just “studies”) may be identified. The key search terms that will be used within each search (using appropriate wildcard and truncation functions) to capture the context and concept of interest are: occupational therapy AND formulation OR conceptualisation.

The search will be conducted separately within four databases: OVID AMED, OVID APA PsycInfo, OVID Emcare, and EBSCOhost CINAHL Plus. See appendix I for the full search strategy to be used within OVID AMED.

Hand searching of the reference lists of selected sources will be conducted, including forward and backwards citing, and searching for further works by identified authors. Additional searching may be conducted within specific journals or platforms if multiple sources are identified within that platform. Authors will be contacted for additional information.

Given the amount of peer reviewed literature identified is expected to be small, internet-based search strategies will also be employed. As proposed by Adams et al. (2016), the term “grey information” will be used to reflect the wide range of information that may be identified (beyond that recognised as “literature”). As suggested by Godin et al. (2015) several complementary strategies will be used to increase reach of records and decrease risk of omitting relevant sources. Grey information searches will be based on the selected search terms with adjustment to the format required within each platform. This may require use of multiple search strategies reflecting different combinations of search terms (Godin et al., 2015).

A search for theses will be conducted in ProQuest Dissertations and Theses Global and EThOS. The latter was selected in acknowledgement that most sources relating to occupational formulation already known to the authors have been developed in the UK.

Advanced Google Scholar and Google searches will be conducted and results sorted by relevance. A search will also be conducted within the search engine Millionshort, to account for filter bubbles that may affect Google searches.

An advanced search will be conducted within Google Books to identify textbooks of potential relevance.

An advanced Google search will be conducted within the MOHO clearinghouse website ([www.moho.uic.edu](http://www.moho.uic.edu)), in recognition that most previous work about occupational formulation known to the review authors relates to the application of the Model of Human Occupation (Taylor, 2017).

As for sources identified during database searching, hand searching will be conducted of the reference lists of sources selected following grey information searches, including forward and backwards citing, and searching for further works by identified authors.

Additional searching may be conducted within specific platforms if multiple sources are identified within that platform, and authors will be contacted for additional information.

Any other sources known to the researchers will also be included.

All searches will be conducted by the first author and search histories will be documented and appended to the review manuscript for transparency and reproducibility.

### Source selection

Following database searches, all identified citations will be collated and uploaded into EndNote 20. Covidence will be used to remove duplicates and manage and document screening of database records. Titles and abstracts will be screened before potentially relevant sources are retrieved in full and assessed in detail against the inclusion criteria. Reasons for exclusion of full texts will be recorded and reported. All screening will be conducted independently by two review authors and discrepancies will be resolved through discussion or with involvement of an additional reviewer/s.

For searches of thesis repositories, title level screening will be conducted within the search platforms by the first author. Potentially relevant sources will be exported to EndNote. Two review authors will screen abstracts within Covidence, with potentially relevant sources being retrieved in full for assessment against inclusion criteria. Any disagreements will be resolved through discussion or with involvement of an additional reviewer/s. Reason for exclusion of full texts will be recorded and reported.

For internet searches, removal of duplicates and initial screening will be integrated with the search process. To ensure feasibility given the potentially large number of results, review of entries will conclude when a series of thirty non-relevant results have been reviewed, or

no further results are displayed. Titles and the short text underneath will be reviewed and those that meet inclusion criteria will be bookmarked and recorded in an Excel spreadsheet, using the approach described by Godin et al. (2015): with bookmarked webpages filed in subfolders named after the search strategy by which they were identified, within main folders reflecting the search engine used. This bookmarking strategy will prevent the same record being selected multiple times, as previously bookmarked pages will be indicated. To further manage potential duplicates, entries containing sources already identified within database searching will not be bookmarked.

The first author will conduct the internet searches and initial screening. Two authors will independently review bookmarked webpages to determine which meet inclusion criteria, recording reasons for exclusion and maintaining records within an Excel spreadsheet. Any disagreements will be resolved through discussion or with involvement of a third author. The EndNote capture reference tool will be used to import selected records to EndNote.

The Google books searches will be screened similarly, with the following adjustments: the title and short text underneath will be reviewed by the first author, and for those that appear to meet inclusion criteria the *preview* and *search inside* functions will be used to further assess the entry to identify sections for full text review. Attempts will be made to locate hard copies of textbooks not indexed in Google books, with the respective index sections used to identify use of key terms. Textbooks selected for full text review will be obtained and reviewed by two review authors. Records will be maintained within an Excel spreadsheet. Any disagreements will be resolved through discussion or with involvement of an additional reviewer/s. Reason for exclusion of full texts will be

recorded and reported. Reference details for selected texts will be entered into EndNote.

Eligibility criteria are expected to be iterative (Levac et al., 2010), based on the following understanding of the concept of interest: the use of formulation or conceptualisation of a person's situation within occupational therapy. This will necessarily exclude sources relating to other disciplines or which use the terms formulation or conceptualisation more broadly, for example in relation to the formulation/conceptualisation of ideas, programs or policies. Inclusion and exclusion criteria will be pilot tested for reliability and refined as needed prior to formal screening.

The results of the searches and the source inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Tricco et al., 2018).

### Charting the data

#### Quantitative data extraction

The first author will extract data from each source, using fields developed by the authors, and enter data into an Excel spreadsheet. Appendix II includes the initial data extraction tool, which will be piloted on five to ten sources and adjusted as needed before formal extraction commences, then refined during use as recommended by Levac et al. (2010). Data to be extracted include source characteristics (e.g. author, date and region) and information relevant to the research objectives (e.g. terminology used, definitions provided). If sources do not include key characteristics, attempts will be made to gather this from the organisation's website, publications, or via contact with the author/organisation.

#### Qualitative data extraction

Sources will be imported into NVivo to facilitate a qualitative research approach to thematic analysis, as recommended by Levac

and colleagues (2010). Data will be organised into overarching themes as exemplified by Daudt et al. (2013). The first author will lead thematic analysis, and theme development will be discussed regularly with other authors, with all authors agreeing upon final themes.

### Critical appraisal of sources

The quality of the included sources will be considered to support understanding and generalisability of findings. Given the potential that varying types of sources of evidence will be identified, review checklists will be chosen in response to the type of sources selected. The CASP checklists will be considered for peer-reviewed studies (<https://casp-uk.net/casp-tools-checklists/>). Given standard tools for assessing risk of bias may not be applicable for grey information (J. Adams et al., 2016; Godin et al., 2015), the three shades of grey literature described by Adams, Price and Huff (2016) which consider level of outlet control and source expertise may be used to classify whether sources are first, second or third tier grey literature (corresponding to significant, moderate or low levels of retrievability and credibility). Additionally, the AACODS checklist (Tyndall, 2010) may be used to assess authority, accuracy, coverage, objectivity, date and significance. The first author will appraise sources using the selected appraisal tool/s, and appraisals will be discussed and confirmed with co-authors.

### Collating, summarising and reporting the results

Tables will be presented of descriptive characteristics and quality appraisals of selected sources, and of data relating to the research questions. A thematic diagram may be used to present qualitative findings. A narrative summary will provide information about the definition, development and use of occupational formulation and will highlight any gaps in the literature and future research priorities.

## Consultation

Arksey and O'Malley (2005) described consultation as an optional scoping review stage that may identify additional references and offer insights beyond the literature. Levac et al. (2010) went further, asserting that consultation be considered an essential component of scoping reviews, and proposed inclusion of four key steps: establishing a clear purpose for the consultation; using preliminary findings to inform the consultation; articulating the type of stakeholders and method of data gathering, analysis, reporting and integration within the review; while including opportunities for knowledge sharing with stakeholders.

A consultation phase will be conducted within time and resources to support understanding and interpretation of preliminary findings, and development of recommendations and dissemination plans. Draft findings will be shared in person or via email with known authors of sources or occupational therapists with experience teaching or using occupational formulation, who will be invited to comment on preliminary findings and share suggestions of further information or sources of evidence, and ideas for development and implementation of occupational formulation, or for dissemination of review findings. Feedback will be summarised and presented within the review findings.

## Ethics and dissemination

Ethical approval will not be required. The review findings will be published in an occupational therapy journal and presented at occupational therapy conferences. Summaries may be produced for publication in practice forums (e.g. OTA Connections magazine) or sharing with various groups such as university educators or clinicians. Dissemination plans will be finalised following the consultation phase.

## Strengths and Limitations

The proposed review's strengths lie in its rigorous methodology, with multiple search

strategies and detailed plans for screening, analysing, appraising and reporting, as well as input from an expert librarian and a planned stakeholder consultation phase. Development of the design in accordance with best practice guidelines and registration of the protocol prior to commencement of the review support trustworthiness in conducting the review. Despite the decision not to apply search limits, it is possible that the review will not identify all relevant sources and it is hoped that the use of a multi-pronged search strategy will reduce likelihood of this limitation occurring. Given available resources, initial screening of internet search sources, data extraction, quality appraisal and qualitative analysis will only be conducted by one author, which may impact reliability. To minimise risk of research bias during initial screening of internet sources the first author will retain sources where ambivalent, ensuring that they progress to full text review by two reviewers. Trustworthiness will be enhanced by holding regular discussions with all review authors regarding quality appraisal, extraction, thematic development and findings.

## Conclusion

A comprehensive scoping review methodology has been designed to identify a broad range of sources relating to occupational formulation as used in occupational therapy practice. This will allow for description of what is known about the development and use of occupational formulation within occupational therapy and the current evidence base. It is hoped that a clear definition will be identified, as well as recommendations for implementing the approach within occupational therapy and for future research.

## Acknowledgements

The authors acknowledge the input of Ms Paula Todd, subject librarian (Medicine, Nursing & Health Sciences), who supported development of the search strategy and protocol. This review will contribute to the first author's PhD degree.

## Funding

The first author received financial support to undertake this work through an Australian Government Research Training Program (RTP) Scholarship.

## Conflicts of interest

There is no conflict of interest in this project.

## References

- Adams, J., Hillier-Brown, F. C., Moore, H. J., Lake, A. A., Araujo-Soares, V., White, M., & Summerbell, C. (2016). Searching and synthesising 'grey literature' and 'grey information' in public health: critical reflections on three case studies. *Systematic Reviews*, 5(1), 164. <https://doi.org/10.1186/s13643-016-0337-y>
- Adams, R. J., Smart, P., & Huff, A. S. (2016). Shades of grey: Guidelines for working with the grey literature in systematic reviews for management and organizational studies. *International Journal of Management Reviews*, 19(4), 432-454. <https://doi.org/https://doi.org/10.1111/ijmr.12102>
- American Psychological Association. (2006). Evidence-based practice in psychology: APA presidential task force on evidence-based practice. *American Psychologist*, May-June 271-285. <https://www.apa.org/pubs/journals/features/evidence-based-statement.pdf>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-32. <https://doi.org/10.1080/1364557032000119616>
- British Psychological Society. (2017). *Practice guidelines*. <https://www.google.com/url?client=internal-element-cse&cx=012584428886118735240:2cy5erofskq&q=https://www.bps.org.uk/sites/www.bps.org.uk/files/Policy/Policy%2520-%2520Files/BPS%2520Practice%2520Guidelines%2520%2528Third%2520Edition%2529.pdf&sa=U&ved=2ahUKewijgfL5-7zAhXK7HMBHRbtDEAQFnoECACQAg&usg=AOvVaw1bEYe7kuZPgFLMG0HEcFzU>
- Brooks, R., & Parkinson, S. (2018). Occupational formulation: A three-part structure. *British Journal of Occupational Therapy*, 81, 177-179. <https://doi.org/10.1177/0308022617745015>
- Colquhoun, H. L., Levac, D., O'Brien, K. K., Straus, S., Tricco, A. C., Perrier, L., Kastner, M., & Moher, D. (2014). Scoping reviews: time for clarity in definition, methods, and reporting. *J Clin Epidemiol*, 67(12), 1291-1294. <https://doi.org/10.1016/j.jclinepi.2014.03.013>
- Daudt, H. M. L., van Mossel, C., & Scott, S. J. (2013). Enhancing the scoping study methodology: a large, inter-professional team's experience with Arksey and O'Malley's framework. *BMC Med Res Methodol*, 13(748). <https://doi.org/10.1186/1471-2288-13-48>
- Fleming, M. H., & Mattingly, C. (1994). Giving language to practice. In C. Mattingly & M. H. Fleming (Eds.), *Clinical reasoning: Forms of inquiry in a therapeutic practice* (pp. 3-21). F.A. Davis.
- Forsyth, K. (2017). Therapeutic reasoning: planning, implementing, and evaluating the outcomes of therapy. In R. R. Taylor (Ed.), *Kielhofner's Model of Human Occupation* (5th ed., pp. 159-172). Wolters Kluwer.
- Godin, K., Stapleton, J., Kirkpatrick, S. I., Hanning, R. M., & Leatherdale, S. T. (2015). Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. *Systematic Reviews*, 4(1), 138. <https://doi.org/10.1186/s13643-015-0125-0>
- Godoy, A., & Haynes, S. N. (2011). Clinical case formulation: Introduction to the special section. *European journal of psychological assessment*, 27(1), 1-3. <https://doi.org/10.1027/1015-5759/a000055>
- Hass, M. R., Maupin, Z., & Doria, M. (2020). Case conceptualization as an alternative to educationally related mental health assessments *Contemporary School Psychology*. <https://doi.org/https://doi.org/10.1007/s40688-020-00349-y>
- Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: advancing the methodology. *Implementation Science* 5(69). <https://doi.org/doi:10.1186/1748-5908-5-69>
- Parkinson, S., & Brooks, R. (2021). *A guide to the formulation of plans and goals in occupational therapy*. Routledge.
- Peters, M. D. J., Godfrey, C. M., McInerney, P., Munn, Z., Tricco, A. C., & Khalil, H. (2020). Scoping reviews. In A. E. & Z. Munn (Eds.), *JBIM manual for evidence synthesis*. Joanna Briggs Institute. <https://doi.org/https://doi.org/10.46658/JBIMES-20-12>
- Rainforth, M., & Laursen, M. (2014). A literature review of case formulation to inform mental health practice. *J Psychiatr Ment Health Nurs*, 21(3), 206-213. <https://doi.org/10.1111/jpm.12069>
- Schell, B. A. B., & Schell, J. W. (2008). Professional reasoning as the basis of practice. In B. A. B. Schell & J. W. Schell (Eds.), *Clinical and Professional Reasoning in Occupational Therapy* (pp. 3-12). Wolters Kluwer.
- Taylor, R. R. (Ed.). (2017). *Kielhofner's model of human occupation* (5th ed.). Wolters Kluwer.
- Thompson, B. (2012). Abductive reasoning and case formulation in complex cases. In L. Robertson (Ed.), *Clinical reasoning in occupational therapy: controversies in practice*. (pp. 15-30). Wiley-Blackwell. <https://doi.org/10.1002/9781118702833.ch2>
- Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K. K., Colquhoun, H., Levac, D., Moher, D., Peters, M. D. J., Horsley, T., Weeks, L., Hempel, S., Akl, E. A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M. G., Garrity, C., . . . Straus, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Med*, 169(7), 467-473. <https://doi.org/10.7326/M18-0850>
- Tyndall, J. (2010). *AACODS checklist*. F. University. [https://dspace.flinders.edu.au/xmlui/bitstream/handle/23/28/3326/AACODS\\_Checklist.pdf?sequence=4&isAllowed=y](https://dspace.flinders.edu.au/xmlui/bitstream/handle/23/28/3326/AACODS_Checklist.pdf?sequence=4&isAllowed=y)

## Appendices

### Appendix I: Search strategy for OVID AMED (Allied and complementary medicine)

No limits will be set.

1. Occupational therap\*.mp.
2. Formulation.mp.
3. Conceptuali#ation.mp.
4. 2 or 3
5. 1 and 4

### Appendix II: Data extraction tool

#### Source characteristics

- Author
- Date
- Title
- Journal or source organisation
- Volume/Issue/Pages or website
- Country/Region
- Practice area (e.g. mental health)
- Source type
- Goal/objective of source
- Funding source

#### Data informing research objectives

- Terminology used to describe formulation
- Definition of (occupational) formulation
- History/development of formulation
- Purpose of using formulation
- Approach to using formulation
- Model/framework referenced
- Reported outcomes of use