

META-SYNTHESIS OF QUALITATIVE STUDIES: BACKGROUND, METHODOLOGY AND APPLICATIONS

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ABSTRACT

Primarily focused on answering questions about why and how, this qualitative research relates to human beings and behaviour and could bring understanding of socially constructed phenomena, including people's needs, experiences, behaviour, motives, desires and expectations.

Meta-synthesis is an important method that provides valuable insights into the qualitative research area. The methodological paper aims to describe both the main conceptual background and the creation process of meta-synthesis (according to individual steps/phases) in the field of social science and educational research.

The content of the paper includes the description of the 7-step procedure's preparation (deciding the phenomenon of interest; deciding what is relevant; careful reading and re-reading; translating studies into one another; synthesizing the translation; expressing the synthesis), checklists for validation of the conclusions/findings obtained from analytical process (QUARI: the Qualitative Appraisal and the Review Instrument; CASP: Clinical Appraisal Skills Program in particular), and the SPIDER model: comprehensive search, appraisal of reports of qualitative primary studies, classification of studies, and findings synthesis. Methods of studying relevant literature (scientific articles), a content analysis and a critical comparison of knowledge were used. The output is presented as a short methodological review focused on the meta-synthesis method application to social sciences and educational research activities.

Keywords: meta-synthesis, qualitative approach, methodology, checklist, 7-step procedure's preparation, social science research

INTRODUCTION

Qualitative data are helpful to better understand and further interpret existing evidence generated from quantitative studies. There are 3 specific objectives [1] when conducting a qualitative meta-synthesis: (1) theory building; (2) theory explication; and (3) theory development. It is illuminating, and a holistic view of the phenomena results from the synthesis of qualitative findings from numerous studies. The meta-synthesis approach has been determined to be an appropriate method to closely examine the phenomena from the perspectives of those who are affected by the phenomena (and its context) as well as the extrapolations of the authors who investigated the concept. This method of "analysis" provides an opportunity to integrate findings from across a range of qualitative studies to

produce a conceptually more robust account of the meaning and significance of a phenomenon than would have been possible on the basis of a single qualitative study [1]. Meta-synthesis can advance current knowledge by blending together the qualitative accounts of several studies on the topic, thus providing a broader framework (background) for research practice based on novel knowledge [2].

META-SYNTHESIS PREPARATION PROCEDURES

Meta-synthesis is an important method that enriches research with valuable findings [2], [3]. Qualitative research studies primarily focus on answering questions why and how. They relate to the human being and human experiences and may produce an understanding of socially constructed phenomena, including needs, experiencing, behaviour, motives, wishes and expectations of persons (children, pupils, students, clients, patients, etc.) Qualitative research studies also play a significant role in producing research-based evidence [1], [4], [5] and a deep insight into the phenomenon under investigation. A meta-synthesis must be distinguished from meta-aggregation and other forms of qualitative research syntheses [2], [5], which focus on the identification of common themes across studies rather than being concerned with the interpretation of differences and diversities in the data set. In a meta-synthesis, the aim is to move beyond summaries and to offer novel interpretations of findings from primary studies [2]. It is a method for integrating the results of (phenomenological) studies of persons' experiences. One of the many purposes of meta-syntheses is understanding of existing knowledge [6]. In their nature, qualitative meta-syntheses are exploratory-descriptive an interpretative, broaden the understanding of a phenomenon and associations with current theoretical postulations. This happens through integration of multiple inter-related qualitative studies.

However, it is essential to note that the meta-synthesis is not a mere summarization of conclusions and findings of qualitative studies. It is because the process includes reconceptualising of the findings and then interprets them to create new insights, beyond those attained from individual studies [5], [7]. The meta-synthesis outcome may include generating new theories, developing conceptual models, identifying gaps in research, adding breadth of understandings to existing knowledge, providing evidence to current state of knowledge, etc. [5], [6], [7]: the meta-synthesis will allow their exploration, description and understanding in their complexity and multifaceted dimensions of experiences.

Meta-syntheses of conceptually rich qualitative studies have the potential to generate high-level evidence for research and knowledge transfer. Several approaches have been developed to synthesize qualitative studies [3], [5]: (1) meta-ethnography; (2) thematic synthesis; (3) narrative synthesis; (4) meta-summary; (5) critical interpretive synthesis; (6) grounded theory; (7) meta-narrative; (8) frame work synthesis; (9) ecological triangulation; (10) qualitative cross-case analysis; and (11) meta-study (including meta-method,

meta-data and meta-theory). Meta-ethnography was the first to be developed and it is the most commonly used method in social sciences and both psychological and educational research [5], [8], [9], [10]. Meta-ethnography is the most commonly used method (followed by thematic synthesis) in most published meta-syntheses over the past 10 years. Meta-ethnographic principles and concepts for the foundation for the development of other widely used methods: meta-study, critical interpretive analysis, meta-narrative and thematic synthesis. Although these methodologies have many similar traits, there are clear differences that can be explained by their epistemology, analytical approach, techniques, and synthesis output [5]. The selection of research methods or their combination is based on the objectives and research questions.

The combined methodological model (Noblit & Hare and Sandelowski & Barroso) is often used. This is a frequently applied model which includes 7 meta-synthetic stages [6], [7]. This model also allows to synthesise non-ethnographic studies and to combine methodologically heterogeneous studies [6], [7], and at the same time respects the 4 parts of the meta-synthesis methodological procedure [12]: (1) comprehensive search; (2) appraisal of reports of qualitative primary studies; (3) classification of studies; and (4) synthesis of findings. It is the most explicit method in terms of its approach to the synthesis [11]. At the same time, this is a process known as The SPIDER Tool (Sample – Phenomenon of Interest – Design – Evaluation – Research Type) [13].

THE COMBINED MODEL – 7 META-SYNTHETIC STAGES

Step 1 – Deciding the phenomenon of interest: The purpose of the meta-synthesis is to make a scientific contribution to the current state of knowledge, fill a research gap, and design conceptual models of the phenomenon.

Step 2 – Deciding what is relevant: The process of meta-synthesis includes conceptually relevant studies. A combination of both narrow and broader comprehensive search procedures is frequently used. Relevant studies can be searched in numerous databases and meta-search engines (these include for example the following meta-sources: EBSCO and OVID, and databases: Web of Knowledge, Academic Search Ultimate, JSTOR, MEDLINE Complete, PsycARTICLES, PsycINFO, PubMed, ScienceDirect, SCOPUS, SocINDEX with Full Text, Wiley and Blackwell Online Library, etc.). Full-texts can be looked up by means of Google Scholar or the ResearchGate platform (used when a PDF file is not retrievable from the database where the study was found). A combination of electronic searches with hand searching is often used. Although the minimum number of identified relevant studies is not specified, usually (initial literary search) it should be two to three hundred studies (depending on the theme of the meta-synthesis, extent of research questions, and complexity of the research objectives). The final number of studies included in the process of meta-synthesis depends on the decision (agreement) of the researchers, context of the investigation, and availability of resources. Some authors claim (regarding the requirement to formulate conclusions) that a meta-synthesis should include (if available) at least 10 or 12 primary studies [1]. There was no cap on the number

of studies to be included; this was to ensure that the results would be as saturated and transferable as possible. The search terms are used in the first phase of research (initial search phase of meta-synthesis) and other search terms can be added in the second search phase (other combinations based on Boolean operators).

Step 3 – Careful reading and re-reading: reviewers should undertake extensive reading and re-reading of included studies. This process also helps to determine what data to extract and how they can be achieved. The studies will be read repeatedly, with particular attention to the detail of the texts and the metaphors or themes extracted from each study. The main purpose of individual text evaluation is twofold: (1) to explore whether the studies meet the inclusion criteria; and (2) to assess methodological and substantive strengths and weaknesses [5]. The strategies will include taking notes, construction grids, and making lists – a continuous activity will be recording of key themes and metaphors within each study into record sheets predefined by the team of reviewers (relationships between the studies, a list of key phrases, themes, concepts or metaphors) [2]. Extracting key concepts by different researchers and comparing the findings are essential steps to gain a common understanding. During the initial stage, extracting data which focus on the key themes of authors' data interpretations (second-order constructs) is preferred. Individual participants' quotes are considered as first-order constructs. Third-order constructs will be included in the content of meta-synthesis (publishing process); this is the highest level of interpretation. The first-order themes will further be aggregated into constructs [5], [12]. The fundamental purpose of step 3 is to determine similarities and differences and prepare the data for the next steps. The first-order constructs (the participants in the primary study are the first-order interpreters) are tabulated and described in the first-order scheme. This scheme contains a column with constructs, another column with the theme title and article number(s), and a description of the theme. The higher-order categories of meanings can be assessed as so-called master themes [1], [5].

Step 4 – Determining how studies are related: once the key themes are identified and grouped (integrated), a challenging and careful process takes place which involves searching for associations between the themes by looking across all themes.

The reviewers should proceed in compliance with the requirement for a detailed description and transparency of this process, which will also involve classification of the key concepts into relevant categories including the application of a thematic analysis approach to merge identified themes into categories before developing the final categories. Reviewers can use a gradually developing conceptual coding framework / data generated framework (it allows coding of the entire data set). This approach is time efficient, but strongly helpful in forming detailed insights into the whole data set, particularly if studies are not being directly related). In addition, the framework generated can be expanded or reduced.

Step 5 – Translating studies into one another: this stage is most challenging and requires thorough understanding of the details of each study. In this stage 3 recommended approaches can be used: (1) conceptual translation (also called reciprocal translation); (2) refutational translation (exploration, examination and integration of contradictory findings from included studies); and (3) line of argument (building up of a picture of all the aspects of the synthesized parts using a short paragraph, diagram or conceptual model). The process of translating each study into the terms or metaphors of other studies is unique, with the goal of protecting the particulars of each study as a whole [2]. In this stage the process of constant comparison (of similarities and differences) is often used. The subsequent translation approach (one paper/study read and then the second, third and so on) and the chronologically ordering studies approach, which will ensure the implementation of sub-group analyses, can be combined. The outcome of this stage will be a description of the details and dimensions of all thematically coded data and a synthesis model.

Step 6 – Synthesizing the translation: this step involves a higher-level interpretation

to give new understandings [10]. It is achieved by bringing together the translated themes and making sense of them. The data synthesised from all themes are mapped together in order to produce a line of argument (synthesis) that reflects the whole category. This can help to reflect insights of reviewers and build conceptual models. Based on the literature review and meta-synthesis of selected articles, a conceptual model of the phenomena

will be proposed (all the reflections, interpretations, and conclusions thought in the previous step will reflect this process). Synthesizing qualitative research findings into meta-summaries is one of the characteristics of the Sandelowski and Barroso's approach. Meta-summary is an iterative process including extraction, separation, grouping, and abstraction of the text findings into numbers and statements sets [12].

Step 7 – Expressing the synthesis: this is the final stage of the process of meta-synthesis. The findings (conclusions, interpretations, conceptual model/s) are published in scientific journals and/or scientific monographs, which will ensure effective knowledge transfer.

It appears desirable to perform an international comparison of the knowledge.

METHODOLOGICAL ASPECTS OF THE META-SYNTHESIS PREPARATION

For the meta-synthesis process, the following components must be defined [5], [12]:

(a) scope of included studies; (b) inclusion criteria; (c) quality assessment; (d) the best data synthesis method; and (e) criteria for reporting of findings.

Re (a) and (b): the search and retrieval processes involve several parameters such as the target topic, sample, time, and method(s) [5]. Only high-quality studies can be primarily included (academic and peer-reviewed articles) that use a qualitative methodology (grounded theory, phenomenological analysis, qualitative case studies, narratives, interviews, etc.) and that have clear and detailed methods and methodology (theoretical or purposive sampling, etc.) Secondly, doctoral dissertations can be included too. As a result of hand searching, the overview of studies will also include qualitative studies without subject headings. In the course of searching, all three basic and recommended procedures will be used: (1) using database thesaurus terms; (2) using free-text terms; and (3) using broad terms.

Regarding the fact that the title, abstract and keywords need not suggest the methodology applied, one stage of the search process should include both qualitative and quantitative studies, from which only relevant and qualitative studies will be selected. Forward and backward tracking of citations can be used to further complement the research efforts. The reviewers usually mainly use subject headings, author names, and keywords to search for relevant sources.

Inclusion criteria – examples: (1) the publication is qualitative in research design;

(2) the publication is academic and peer-reviewed in nature or – in an additional search – also doctoral dissertation (these sources often contain detailed description of findings); (3) the publication deals with investigation, exploration and/or experiences of the given phenomenon and its context; (4) the study uses primary data; (5) the authors of the study use a defined sample and/or sampling; (6) qualitative data collection was done through some of recognized qualitative method(s); (7) the study is written in English (or other languages); (8) the study may also describe defined aspects of the research problem.

If possible, both non-eligible and eligible studies will initially be identified by all reviewers.

Exclusion criteria – examples: (1) studies with an entirely conceptual or theoretical background and no research design; (2) studies using a quantitative method (quantitative-based research analysis); and (3) studies with close-ended survey questions as the data collection instrument/tool; (4) qualitative data are not organized into themes or study findings do not reflect the experience. Both non-eligible and eligible studies will initially be identified by all reviewers.

Timeframe – example: in order to ensure topicality of scientific findings, the period of publication (primary period) can be limited to the past 5 years (studies included need to be recent and to reflect contemporary state of knowledge rather than historical experiences); then (secondary period) publications during the past 10 years will be accepted (identified in the initial

literary search); and last but not least (tertiary period) the search will include resources according to the specific requirements of the researchers.

The articles selected for the meta-synthesis are tabulated (in extraction sheets) mainly depending on their research objectives, theoretical background, data collection methods or overall conceptual method and analysis, category/type of phenomenon, sample characteristics, and age, gender and ethnicity of subjects (participants) and country of origin. The main purpose can be seen in the understanding, explanations, and experiences of the participants about specific phenomenon. A conceptual model can be proposed (as a flowchart of primary study selection).

Re (c): in addition to the components mentioned above, this requirement can be supported by using a validated checklist. Based on a study of methodological literature and previously published meta-syntheses, e. g. the Qualitative Appraisal and Review Instrument – QARI [4] and CASP (Clinical Appraisal Skills Programme) Checklist [14] can be used. Both tools allow systematic assessment of the quality of qualitative studies and are widely applied in meta-synthesis approach. The above tools contribute to all three levels of credibility (unequivocal, credible, unsupported). The QARI is coherent instrument accessible online and includes 10 clear questions using a 4-point scale (yes – no – unclear – not applicable) [8], [9]. The CASP Checklist contains 3 assessing sections (“Are the results of the study valid?” – “What are the results?” – “Will the results help locally?”) using a 3-scale evaluation (yes – no – can’t tell) [14]. Care can be taken to ensure the theme labels (key themes) capturing the participants’ experiences as described by the original authors rather than introducing explanatory or theory-driven constructs at this stage. New theme labels will be constructed on the basis of the participants’ quotes. This requirement will also be supported by continuous constant comparisons in theme clusters. Analytic-synthetic work with concepts can be further supported by concept analysis – in the area of meta-synthesis research, the Walker & Avant model [15] is often used (and recommended).

Re (d): there is currently no gold standard method for this part [4]. Studies with different methodologies can be used (not only those with the same methodology) that focus on the phenomenon in question. In this way, the phenomenon will be captured in its width and depth.

Re (e): although there is no gold standard guideline for reporting of meta-syntheses, it is desirable to publish the meta-synthesis in a prestigious international journal with an impact factor, in peer-reviewed journals, conference papers, in a monograph in English and/or in other languages.

CONCLUSION

The process of synthesising the results will enable the production of a complex and yet coherent picture of the parameters of the experience in a question of solved problem (phenomena). A meta-synthesis research, inter alia, in both social and

educational field is to be welcomed because it allows researchers to gain a better understanding of persons' experiences (in a view of vulnerable persons' limited recourses). Performing a meta-synthesis will mean studying above all experience, everyday life, turning points, strengths and challenges etc. on the phenomenon.

The process of meta-synthesis has some limitations, which can be identified in the process of searching and classification of studies, performing the meta-synthesis and before/during publication. The main limitations include subjective interpretation of the reviewers (this can be resolved by impartial assessment of an independent member/reviewer to objectify and validate the conclusions – so called investigator-triangulation), understanding of the data (repeated reading and discussion), and last but not least the skills of the assessors and their professional erudition and experience. A common limit is only systematic electronic searches (possibly complemented by manual search) with a follow-up of references.

DECLARATION OF INTEREST

The author declares that the present study has no conflict of interest. The author also declares that the text includes appropriate citations of all bibliographical sources.

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REFERENCES

[1] Willig C., Wirth L., A meta-synthesis of studies of patients' experience of living with terminal cancer, *Health Psychol.*, vol. 37/issue 3, pp. 228–237, 2018.

[2] Clemmens D., Adolescent Motherhood. A Meta-Synthesis of Qualitative Studies, *MCN Am J Matern Child Nurs.*, vol. 28/issue 2, pp. 93–99, 2003.

[3] Mohammed M. A., Moles R. J., Chen T. F., Meta-synthesis of qualitative research: the challenges and opportunities, *Int J Clin Pharm.*, vol. 38/issue 3, pp. 695–704, 2016.

[4] Joanna Briggs Institute Reviewers' Manual: 2014 edition. Systematic review; protocol; effectiveness; qualitative; economic; and methods. Retrieved from: <http://joannabriggs.org/assets/docs/sumari/ReviewersManual-2014.pdf>. [2018-05-31].

[5] Ludvigsen M. S., Hall E. O., Meyer G., Fegran L., Aagaard H., Uhrenfeldt L., Using Sandelowski and Barroso's Meta-Synthesis Method in

Advancing Qualitative Evidence, *Qual Health Res.*, vol. 26/issue 3, pp. 320–329, 2016.

[6] Atkins S., Lewin S., Smith H., Engel M., Fretheim A., Volmink J., Conducting a meta-ethnography of qualitative literature: lessons learnt, *BMC Med Res Methodol.*, vol. 2008/issue 8, p. 21, 2008.

[7] Campbell R., Pound P., Pope C., Britten N., Pill R., Morgan M. et al., Evaluating meta-ethnography: a synthesis of qualitative research on lay experiences of diabetes and diabetes care, *Social Sci Med.*, vol. 56/issue 4, pp. 671–684, 2003.

[8] Hannes K., Macaitis K., A move to more systematic and transparent approaches in qualitative evidence synthesis: update on a review of published papers, *Qual Res.*, vol. 12/issue 4, pp. 402–442, 2012.

[9] Hannes K., Lockwood C., Pearson A., A comparative analysis of three online appraisal instruments' ability to assess validity in qualitative research, *Qual Health Res.*, vol. 20/issue 12, pp. 1736–1743, 2010.

[10] Douglas A. C. et al., Internet addiction: Meta-synthesis of qualitative research for the decade 1996–2006, *Computers in Human Behavior*, vol. 24/issue 6, pp. 3027–3044, 2008.

[11] Barnett-Page E., Thomas J., Methods for the synthesis of qualitative research: a critical review, *BMC Med Res Methodol.*, vol. 2009/issue 9, p. 59, 2009.

[12] Sandelowski M., Barroso J., Toward a metasynthesis of qualitative findings on motherhood in HIV-positive women, *Res Nurs Health.*, vol. 26/issue 2, pp. 153–170, 2003.

[13] Cooke A., Smith D., Booth A., Beyond PICO: the SPIDER tool for qualitative evidence synthesis, *Qual Health Res.*, vol. 22/issue 10, pp. 1435–1443, 2012.

[14] CASP 2018: Critical Appraisal Skills Programme (2018) – Qualitative Checklist. Retrieved from: <https://casp-uk.net/casp-tools-checklists/> [2018-06-02].

[15] Walker L. O., Avant K. C., *Strategies for Theory Construction in Nursing* (5th ed.), Upper Saddle River, NJ: Pearson Prentice Hall, 2010.