RESEARCH

Management in health
XXIII/4/2019; pp. 8-11

WHY CONDUCTING AND UPDATING SYSTEMATIC REVIEWS ARE RESOURCE INTENSIVE: A PHENOMENOLOGICAL QUALITATIVE STUDY PROTOCOL

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BACKGROUND: *Systematic reviews are labour intensive and time consuming. Previous research describes the large variation of resources needed to conduct a good systematic review and the influence of various factors on the quality and time frame to complete the review process, but an in-depth analysis of the perceived areas where a gain in efficiency can be achieved, has not been conducted.*

OBJECTIVES: *The objective of this study is to understand why some steps in the systematic review production and update processes are more resource intensive than others.*

METHODS: *In-depth, semi structured interviews will be conducted with experts who have conducted or supported systematic reviews on health-related topics including clinical, health services, public health and health policy research.* ***DISCUSSION:*** *As a result of this study we will be able to better understand why some steps of the systematic review process for health-related topics are experienced as resource intensive, as well as factors influencing that intensity.*

Keywords: *systematic review, resources, process, factors*

1. INTRODUCTION

Systematic reviews are labour intensive and time consuming. Several attempts have been made to assess the resources needed to complete a review, with estimations of the time needed for completing a systematic review ranging from 7 months to two years, depending on several factors"[1–4]. Other studies have focused on estimating the resources needed to complete a specific step of the review process, such as developing a search strategy [5], searching the grey literature [6], data abstraction [7] or identifying inefficacies in the process [8]. These studies describe the large variation of resources needed to conduct a good systematic review and the influence of various factors on the quality and time frame to complete the review.

In recent years, the high demands on time and human resources for conducting systematic reviews have led to attempts to automate different steps of the review process[9, 10] or to adapt the review methods, a recent study found 50 unique rapid review methods being used in practice [11]. It is reasonable to believe that the diversity of available methods and tools and the exponentially increasing number of systematic reviewers will result in various research practices, with some being more efficient than others.

Qualitative studies have been conducted in order to explore the topic of resource intensity of the systematic reviewing process and ways to support a more effective process. A recent qualitative study looking at the barriers to the systematic review process have focused on novice reviewers with the aim to highlight key success factors to be considered in the design and execution of a course of instruction over a single semester [12]. Another study focused on the experiences and opinions of systematic reviewers in Healthcare and Social Science domains, with a particular focus on their use of and views about automated tools to support SRs [13].

Results of community workshops conducted with software engineering researchers with the aim to identify and rank barriers to the systematic literature review process have also been made available in specialty journals [14, 15]. While these studies have been very informative for further improving the efficiency of the systematic review process by highlighting areas where additional tools could support the process, some limitations derive from the inclusion of homogenous groups of participants as well as the inclusion of both experienced and less experienced reviewers. We will address these limitations by focusing on experienced reviewers (i.e. authors and co-authors of minimum 5 systematic reviews) with a diverse background and geographical distribution.

This qualitative study is conducted within the context of the EVBRES project, a four-year EU-funded COST Action with over 40 countries participating globally. The current study is part of a wider investigation process which includes a scoping review aiming to quantify the resource use of systematic review steps[16], as well as a scoping review of available tools and methodological approaches for making systematic review production and updating more efficient. The results of these three research streams will feed into a Delphi study that aims to prioritize areas in the systematic review process and methods that are most relevant and promising for expediting the review process.

2. OBJECTIVE

The objective of this study is to understand why some steps in the systematic review production and

update processes are especially resource intensive and, based on this, to make recommendations on practices primary researchers should improve in order to become more efficient when conducting systematic reviews. We will use a qualitative research approach, using semi-structured interviews and qualitative analysis to explore the phenomenon in-depth with a holistic view of the issues. The reporting of methods and results will comply with the consolidated criteria for reporting qualitative studies (COREQ) checklist [17].

3. METHODS

3.1. Methodological orientation and theory

This study is based in phenomenology, focusing on the commonality of a lived experience within a particular group [18–21].

In-depth, semi structured interviews will be conducted with those that are familiar with conducting systematic reviews in order to understand their perceptions regarding resource intensive steps in the systematic review process. Semi-structured interviews are preferred over other methods because they allow the participants to respond freely and to focus on areas they feel contribute most to the objective at hand [19, 22]. Furthermore, using semi-structured interviews permits the interviewer to probe issues that may be of interest to the current research, but are not specifically addressed by the interview guide [23]. This type of qualitative approach is also recognized as an effective research method in fields where little research data is available [24]. As limited data is presently available in this field, this approach was deemed the most efficient method.

3.2. Participants

Participants will represent key actors in the field of systematic review production. In order to get a comprehensive understanding of the matter, we will focus on experts who have conducted or otherwise contributed to the production of systematic reviews on health-related topics: either clinical, health services, public health or health policy. All participants should have led or participated in at least 5 systematic reviews.

We plan to interview:

1. lead-authors and co-authors of systematic reviews that a) belong to organizations with mandates that include the responsibility to conduct systematic reviews i.e. Cochrane, Campbell or JBI Collaborations, or b) conduct reviews independently of these organizations (i.e., academics)
2. information specialists or statisticians and methodologists

3.3. Sampling and method of approach

We will identify potential participants through convenience sampling, initially identifying potential participants through the COST action EVBRES network, and members' extensive networks, as well as snowball sampling, by asking participants for other individuals who may be relevant and willing to participate in this study. In order to do so, an invitation letter and a short profiling and registration tool will be sent to all members of the EVBRES network. When selecting participants, we will aim to create a diverse sample with respect to geographic diversity, experience, content area and types of reviews conducted that will allow us to thoroughly investigate all angles of the phenomenon.

To best serve this aim, our sample will be guided by thematic saturation principles. Thematic saturation is reached when new data does not yield new information and can result in smaller sample sizes than typical quantitative studies, approximately 15 interviews for content or thematic analysis [25]. We will aim to interview approximately 10 individuals from each of the groups mentioned above, however we will continue to interview until we have reached thematic saturation.

3.4. Interviewers and interviews

We plan to conduct face-to-face or telephone interviews. Interviews will be conducted in English and are estimated to take up to 30 minutes each.

Interviewers will be experienced qualitative researchers who have previously conducted systematic reviews. Any necessary specific training and supervision will be provided by a senior qualitative researcher. Interviewers will not have any prior relationship to the interview subjects. Gender will be not important.

A semi-structured interview guide was developed to elicit the perception of participants on the resource use required for one or more of the steps of a systematic review as proposed by Tsafnat and colab. [10] and extended with two new items (i.e. "critical appraisal", "grading the certainty of evidence"). The focus of the interviews will be to explore which steps in the systematic review production and update process are resource intensive, why this is the case and what potential methods and technologies could be implemented in order to prioritize and expedite elements of the systematic review process. The interview guide will be pre-tested within the research team prior to use in the field.

Participants will be asked to sign an informed consent form prior to the start of the interview and will be informed that their responses will remain anonymous and they can withdraw from the study at any time. Interviews will be audio-recorded, transcribed verbatim, and verified by a second researcher. After transcription, audio records will be deleted; de-identified transcripts will be stored on a password-secured computer. Transcripts will be shared with the research team via GoogleDrive and removed from GoogleDrive when the project is completed.

An overall summary of the interview will be returned to participants to ask them about their thoughts and to assure that no misunderstandings happened. Participants in this study will not receive financial compensation for participating in the interview.

3.5 Data analysis

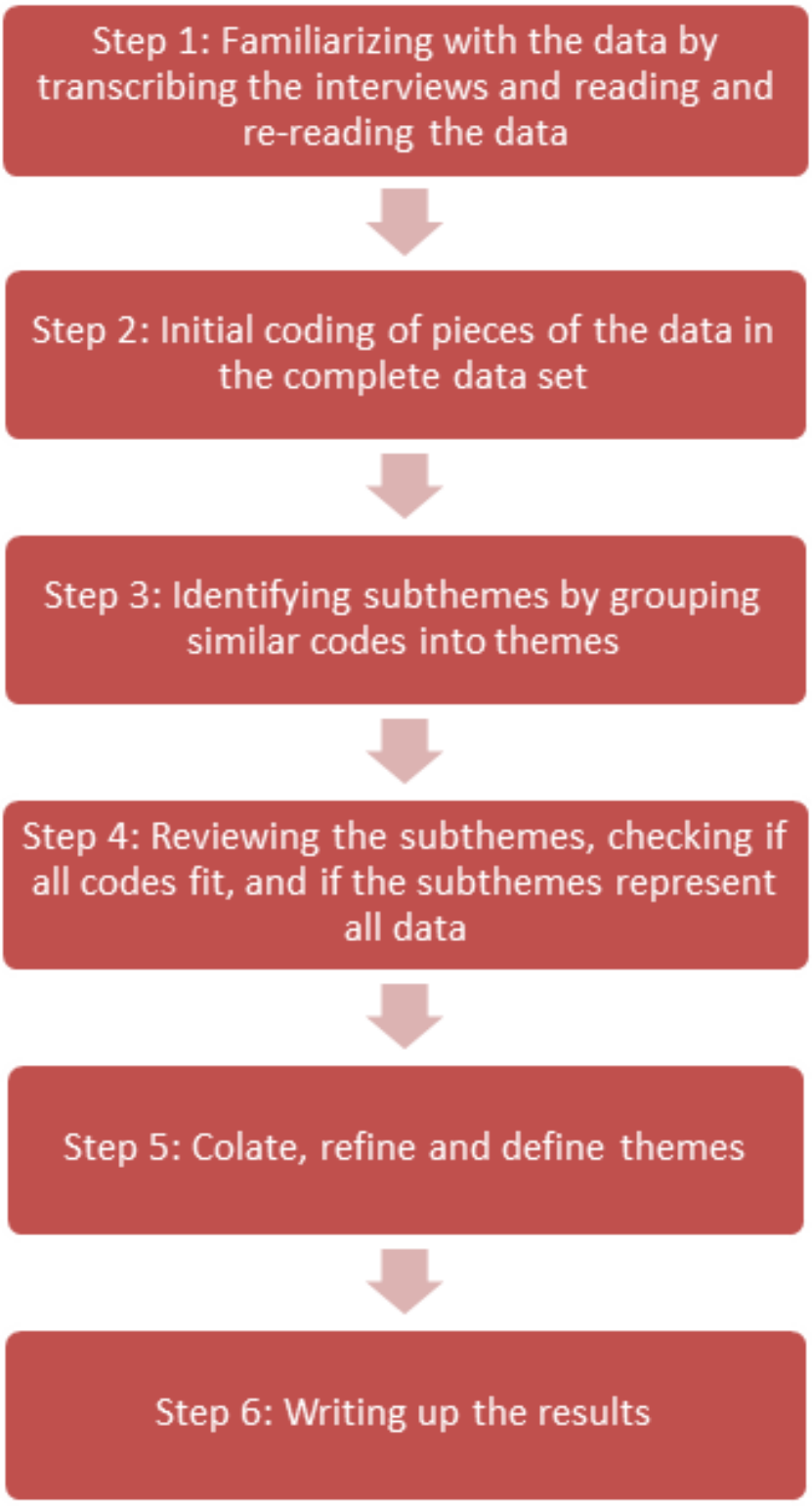
The widely-accepted qualitative analytic method "thematic analysis" will be used to identify, analyze,

and report themes by searching across the data set, i.e. interview transcripts [26]. Thematic analysis allows two approaches. A data driven inductive approach identifies themes throughout the analysis that are strongly linked to the data, whereas a deductive approach is driven by the researchers' theoretical interest and tries to find themes that fit into an existing theory or model [26]. We will employ a deductive approach, guided by the factors identified through the scoping review as resource intensive steps in the systematic review process. Identified themes will be integrated into the pre-identified categories.

The interviews will be analysed by two researchers independently and discussed within the research team to corroborate findings. Results of the interviews will be presented in an aggregated manner and therefore making conclusions about individual participants will be impossible. To analyse qualitative data and to extract quotes we will use NVivo 11.

The process of thematic analysis is illustrated in figure 1 below.

Figure 1: Workflow of thematic analysis (based on Braun & Clarke 2006)



Ethical considerations

We will obtain approval from a local ethics committee before recruiting participants to the study. Signed informed consent forms will be returned prior to interviewing participants. Throughout the project we will adhere to the European Union data protection law (EU Regulation 2016/679).

We do not anticipate any conflicts of interest among our research group. Any potential conflicts of interest that may arise will be stated upfront.

4. DISCUSSION

As a result of this research project we will be able to highlight the steps perceived by researchers and librarians as being the most intensive when conducting a systematic review for health-related topics and to provide an overview of factors explaining why these steps are perceived as resource intensive. In addition, we aim to make recommendations for measures that have the potential to increase the efficiency of the systematic review process. Results of this project will feed into a Delphi study that aims to prioritize areas in the systematic review process and methods that are most relevant and promising for expediting the review process. This should guide future methods improvement and validity studies in this area and ultimately help accelerate systematic review production without compromising quality. We anticipate being able to identify functional insights about critical bottlenecks in conducting time-efficient and academically relevant systematic reviews. This qualitative evaluation of systematic review research efforts and challenges can increase the dissemination of high-quality health-related research evidence.

Funding: This work is partly supported by funds from the European Union (Action CA17117 – COST). The funders had no role in the development of this protocol and

will not have a role in the data collection, analyses, interpretation of the data, and publication of the findings.

Authorship contribution: ME, RS, EB and BNS drafted the protocol, all author and co-authors provided feedback to the protocol, RS and ME finalized the protocol

Conflict of interest: *No conflict of interest.*

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