Use of eco-mapping in health services research: a scoping review protocol

Marianne Saragosa, Hardeep Singh, Carolyn Steele Gray, Terence Tang, Ani Orchanian-Cheff, Michelle L A Nelson

ABSTRACT

Introduction People with complex health and social needs often require care from different providers and services. Identifying their existing sources of support could assist with addressing potential gaps and opportunities for enhanced service delivery. Eco-mapping is an approach used to visually capture people’s social relationships and their linkages to the larger social systems. As it is an emerging and promising approach in the health services field, a scoping review on eco-mapping is warranted. This scoping review aims to synthesise the empirical literature that has focused on the application of eco-mapping by describing characteristics, populations, methodological approaches and other features of eco-mapping in health services research.

Methods and analysis This scoping review will follow the Joanna Briggs Institute methodology. From the date of database construction to 16 January 2023, the following databases in English will be searched: Ovid Medline, Ovid Embase, CINAHL Ultimate (EBSCOhost), Emcare (Ovid), Cochrane Central Register of Controlled Trials (Ovid) and Cochrane Database of Systematic Reviews (Ovid) Study/Source of Evidence selection. The inclusion criteria consist of empirical literature that uses eco-mapping or a related tool in the context of health services research. Two researchers will independently screen references against inclusion and exclusion criteria using Covidence software. Once screened, the data will be extracted and organised according to the following research questions: (1) What research questions and phenomena of interest do researchers address when using eco-mapping? (2) What are the characteristics of studies that use eco-mapping in health services research? (3) What are the methodological considerations for eco-mapping in health services research?

Ethics and dissemination This scoping review does not require ethical approval. The findings will be disseminated through publications, conference presentations and stakeholder meetings.

Trial registration number https://doi.org/10.17605/OSF.IO/GAWYN.

INTRODUCTION

Social support is defined as the perceived or actual receipt of material and social resources (eg, tangible support, emotional support). High-quality, positive social support is essential for maintaining physical and psychological health and well-being. As a social determinant of health, the presence of strong social support can reduce the negative impacts of poverty, food insecurity, health literacy, exposure to trauma and housing instability. A positive relationship has been shown to exist between social support and improved self-management, coping strategies and post-traumatic growth in individuals living with chronic illness. On the other hand, the quality and quantity of social support cannot be assumed to be available and adequate in social networks since support is contingent on personal, environmental and cultural factors. For example, health and social care systems are often uncoordinated, making receiving support from formal sources challenging when family/caregiver support is lacking. Social support is a complex process that involves transactions between people and their extended social networks.

Originally proposed by Bronfenbrenner, ecological systems theory has been widely adopted to understand individuals within their environment while considering interactions between persons and environment, and the ways and extent to which these settings are linked, and the impact of these links on individual behaviour. From this theoretical framework is the ecosystems perspective...
that speaks to social exchanges between the person at the centre and the surrounding environment, represented by radiating and increasing distal ecosystem.\textsuperscript{13} By understanding the multiple levels of their surrounding environment—at the micro levels of the individual or family; meso-system levels in the communities; and macro-system levels of government practices, cultural norms and society—we can better understand the individual in their habitat.\textsuperscript{14} Notably, an ecosystem understanding posits a multilevel transactional focus of the person within an ever-changing and dynamic environment. This also considers what social, relational and instrumental skills individuals need to manage the demands presented by their environment.\textsuperscript{15}

One way of seeing the ecological system of networks and related social relationships of people and families in their ecosystem is through eco-mapping. An eco-map is a simple diagrammatic depiction of the connections between the individual and the various systems indicated by drawing lines between the person and those systems.\textsuperscript{15} Since its development, eco-mapping has been used as an assessment, planning and intervention tool in child and family protection practices,\textsuperscript{16} discharge and reintegration planning,\textsuperscript{14,17} end-of-life care\textsuperscript{18} and in the context of community asset mapping.\textsuperscript{19} The eco-map has also been used as a qualitative research tool for developing more profound theoretical knowledge across a large sample.\textsuperscript{20} The novelty of the eco-map stems from its ability to map an individual's connections across systems and not just familial relationships.\textsuperscript{21} Eco-maps are constructed using circles labelled according to the nature of the relationships representing individuals, groups or organisations, and lines are used to signify the quality (eg, strong, tenuous, absent, etc) and direction (eg, mutual, reciprocal).\textsuperscript{15} From this perspective, the map presents a more holistic and integrative perception of what would be discerned in dialogue alone.\textsuperscript{15,20} The value of this mapping process is its visual impact and ability to systematically organise rich information for the individual and service providers.

A previous review on eco-mapping described eco-maps' application in qualitative health research from database creation to 15 April 2019.\textsuperscript{22} Since eco-maps can help evaluate social networks to improve patient outcomes, and identify and address system and service gaps, as outlined in the previous section, a more recent scoping literature review is warranted to summarise and disseminate existing eco-mapping evidence in health services research.\textsuperscript{16,20,21} Thus, this scoping review aims to synthesise the empirical literature that has focused on the application of eco-mapping by describing characteristics, populations, methodological approaches and other features of eco-mapping in health services research.

**METHODS AND ANALYSIS**

The proposed scoping review will be conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews and informed by best practice guidance and reporting for scoping review protocols.\textsuperscript{25,26} The JBI guidance offers a standardised method for conducting and reporting scoping reviews.\textsuperscript{27} As a result, we expect that this standardisation will enhance the utility and credibility of the results of the review. A preliminary search on Medline, the Cochrane Database of Systematic Reviews and JBI Evidence Synthesis revealed no current or underway systematic reviews or scoping reviews on how eco-mapping has been incorporated into the broader health services literature to design and deliver care. Our methodology will align with the first five stages of the framework outlined below. Using the Population, Concept and Context (PCC) mnemonic, the title of the protocol, the questions and the inclusion criteria will be structured according to these elements.\textsuperscript{25} This scoping review protocol has been registered in the Open Science Framework (registration number: https://doi.org/10.17605/OSF.IO/GAWYN).

**Stage 1: identifying the research question**

The research questions are:

1. What research questions and phenomena of interest do researchers address when using eco-mapping?
2. What are the characteristics (ie, study design, population, context, etc) of studies that use eco-mapping in health services research?
3. What are the methodological considerations for using eco-mapping in health services research?

**Stage 2: identifying relevant studies**

The search strategy developed by an information specialist (AO-C) will aim to locate published studies. AO-C initially searched Ovid Medline on 5 December 2022 to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a complete search strategy for Ovid Medline. This search strategy is provided with this protocol as online supplemental appendix I. The search strategy will be adapted for each database. The reference list of all included sources of evidence will be screened for additional studies. Studies published in English will be included. The retrieval period will be from the date of database construction to 16 January 2023. The databases considered to be most relevant to health services literature will be searched, including Ovid Medline, Ovid Embase, Cinahl Ultimate (EBSCOhost), Emcare (Ovid), Cochrane Central Register of Controlled Trials (Ovid) and Cochrane Database of Systematic Reviews (Ovid) Study/Sourse of Evidence selection. The final search strategies will be provided with the published review. Relevant systematic reviews will be considered sources of potentially applicable primary research for inclusion. Study authors report no prior use of eco-mapping in clinical practice or research activities; however, after developing a research protocol that uses eco-mapping, the authors have become familiar with recent eco-mapping research. Therefore, we expect to screen these studies in the search, further validating our strategy.
Stage 3: study selection
AO-C will perform all searches in the databases. The results across all the databases will be combined and imported to Covidence to assist with documenting and managing the studies during the review, and duplicate publications will be removed. We will conduct a pilot test on 10 titles and abstracts of the screening criteria to evaluate reviewer agreement. Discrepancies in the agreement will be resolved through discussion between the reviewers, and another pilot test of 10 articles will be screened until a consensus is reached. Following the pilot testing, titles and abstracts will be screened by study authors MS and HS for assessment against the following inclusion criteria for the review: (1) published in the English language in a peer-reviewed journal; (2) details the application of eco-mapping/eco-map(s) within a health services research context (defined below); and (3) it includes primary data. Only ineligible publications will be removed, and unavailable abstracts or uncertainty over inclusion will prompt a full-text review of the citation. Potentially relevant sources will be retrieved in full and assessed in detail against the inclusion criteria by the same two independent reviewers (MS and HS). Reasons for the exclusion of sources of evidence at the full-text screening stage that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion or with an additional reviewer/s. The results of the search and the study 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 Reviews (PRISMA-ScR) flow diagram. We will contact authors of primary sources or reviews for further information if relevant to the review. Eligibility will be based on the prespecified inclusion criteria noted below. This scoping review will include studies of all design types; however, non-peer reviewed or comments will be excluded. Following the JBI construct of PCC, the inclusion criteria are as follows:

Population
We will include studies in any population or study participants to ensure a wide scope of the literature.

Concept
The core concept consists of the application of eco-maps. Eco-maps are visual illustrations with the individual or family in the centre, surrounded by every relationship within their environment.

Context
Several definitions of this multidisciplinary field of health services research are available in the literature. However, no global definition exists. As a result, authors have selected the Canadian Institute of Health Research’s (CIHR) definition given its application in other scoping reviews and familiarity to the study authors. CIHR defines health services research as research to improve the efficiency and effectiveness of health professionals and the healthcare system through changes to practices and policy. Health services research consists of a multidisciplinary approach to the scientific inquiry of how social factors, financing systems, organisational structures and processes, health technologies and personal behaviours affect access to healthcare, the quality and cost of such care and ultimately the well-being of the public. We will exclude studies outside the scope of health services (eg, environmental studies).

Stage 4: charting the data
Two reviewers (MS and HS) will independently extract data from the included studies after piloting the JBI data extraction instrument using Covidence software. The data extracted will include specific details about the participants, concept, context, study methods and critical findings relevant to the review questions. Relevant categories for the data will include author, year of publication, country(ies) of origin, study purpose/aim, study design, data collection method(s), study participants, sample size, study sector and setting (hospital, community, long-term care, etc), findings, implications to health services and quality or limitations. The data extraction tool will be modified and revised as necessary while extracting data from each included evidence source. Modifications will be detailed in the scoping review. Any reviewer disagreements will be resolved through discussion or with an additional reviewer/s. The extraction of all relevant data will occur using free text.

Stage 5: collating, summarising and reporting the results
A scoping review is designed to provide an overview of the extent and nature of a body of literature. To do this, we will employ three reporting and presentation strategies. First, we will use a modified Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA-ScR) followed by a basic numerical account of the amount of included records, year of publication, type of design, the context of use, etc. A directed content analysis will be carried out on the included literature according to the purpose of eco-mapping, study findings and implications for health services. We will also examine methodological implications, such as the analytical approach and techniques used to analyse and interpret the eco-mapping data, instructions supporting the eco-map construction and identified benefits or challenges. The descriptive synthesis will also offer study limitations, knowledge gaps and opportunities for future research relevant to eco-mapping in health services.

Patient and public involvement
Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

ETHICS AND DISSEMINATION
The scoping review produced as part of this protocol will support a larger body of work that seeks to generate a
new understanding of the formal and informal health and social connections supporting older adults following a hospital discharge. By building on the work proposed in the scoping review protocol, there may be more opportunities to use innovative tools in the applied health research field. For example, our findings may illuminate how eco-mapping shapes policy, practice and wide-scale system transformation. However, we also expect that the results of this scoping review will provide methodological clarity and guidance for eco-mapping in this work. Strengths of this scoping review include synthesising a large body of research with a multidisciplinary and multisectoral focus, an informal specialist assisting with the search strategy, two reviewers screening all records to ensure accuracy and identifying implications for health services research. A limitation stems from not assessing the quality of the included studies. The findings from the scoping review will be disseminated in a peer-reviewed scientific journal and through conference presentations. This scoping review aims to identify, map and summarise publicly available sources of eco-mapping in health services research. Therefore, it does not require ethical approval.

Contributors MLAN conceptualised the project and reviewed and commented on the manuscript. MS developed all aspects of the methodology and drafted the manuscript. HS, CSG and TT reviewed and commented on the manuscript. AO-Saragosa M, et al. BMJ Open 2023;13:e072588. doi:10.1136/bmjopen-2023-072588

REFERENCES


