Professional collaboration in searching the evidence for an ill-defined concept

Martin McMahon
Division of Health Research, Lancaster University, Lancaster, UK
Email: m.mcmahon2@lancaster.ac.uk

Chris Hatton
Division of Health Research, Lancaster University, Lancaster, UK

Simon Alberici
Department of Health and Social Services, States of Jersey, St Helier, UK

Abstract

This paper outlines the inter-professional collaboration of the authors, a PhD student, his supervisor and an information professional, to systematically search the literature for an ill-defined concept. The research question posed for the scoping literature review indicated that the topic, the subjective socio-economic status and health of adults with intellectual disabilities, was rare. The need for a methodological search process was therefore identified and successfully carried out. The paper presents an analysis of the processes and the collaboration involved in developing a successful search strategy. The resulting transformative learning by the researcher of the professional practice of the information specialist illuminates their facilitating and supportive role in advancing health related research.

Keywords: database searching; information skills; literature searching; PhD thesis; review, scoping

Introduction

This study outlines the interprofessional collaboration of the researchers (MMcM & CH) and an information scientist (SA) to systematically search the literature for an ill-defined concept in the absence of known evidence. The search was conducted to form a scoping review by the first author as a part fulfilment of his alternative format PhD programme. In the absence of known previous research that had explicitly addressed the topic of the review, the need for a systematic search process was identified and successfully carried out. This study explores the collaboration between the researchers and the information scientist to develop a search strategy and identify relevant research to include in the scoping review. Focusing on the role of the information scientist as facilitator and educator, the development of the systematic search involving the collaborative knowledge and skills of the researchers and the information scientist are outlined and reflected upon.

Background context

The past decade has seen a significant increase in students undertaking PhDs through publication or in alternative formats insofar as students do not produce a large single monograph, rather they publish multiple peer review manuscripts throughout their studies that assembles into an interrelated coherent thesis upon completion. Traditional PhDs have a literature review chapter that synthesises existing scholarship known about the studies' topic. Whilst this is incorporated in alternative format routes, systematic reviews and their familial equivalents (e.g. rapid reviews and scoping reviews) are now becoming a principal method for students of alternative format PhDs to conduct a comprehensive and structured literature search to justify that their research is theoretically grounded and necessary whilst

contributing originality within the specific arena (Moher, Stewart & Shekelle, 2015). There are many advantages of this alternative formative approach. By virtue of following a systematic searching process, the potential of bias is minimised and the search process can be replicated. Following a systematic search process is an important starting point for many student PhD researchers. Nonetheless, many difficulties present themselves. Firstly, such reviews are complex to undertake and there is an established evidence base supporting insufficient rigour in many peer-reviewed publications involving systematic literature searching (Koffel, 2015). Secondly, inexperienced students often will not have the general research skills to administer all aspects of a systematic search strategy. Conducting such reviews has generally been perceived to be a post-doctoral skill. Finally, such searches are labour-intensive requiring at least two to three people and the involvement of an information science specialist. This can be further complicated when the PhD student is trying to add originality to their work and examine an ill-defined concept within their field of study. The absence of known research that had explicitly addressed the first author's PhD topic 'is subjective socio-economic status a discrete correlate of health in individuals with intellectual disabilities?' from the outset, reinforced the need for a systematic search process. This was achieved through the interprofessional collaboration of researchers and an information science specialist.

Literature review

The aim of this study was to explore this interprofessional collaboration in conducting a scoping review. The brief literature review presented here serves to identify and focus the research question of the scoping review. Intellectual disability is characterised by a significantly reduced ability to learn new skills and understand complex information (impaired intelligence) with a reduced ability to manage independently (social functioning), which started before adulthood and has a lasting effect on development. Individuals with intellectual disabilities have greater health needs, out of proportion of the general population and die on average 20 years before their non- intellectual disability peers (O'leary, Cooper & Hughes-McCormack, 2018). Conventional socio-economic status factors such as education, occupation and income have a profound influence on how long a person will live and how healthy a life they will have. This socio-economic gradient has a strong evidence base, and these objective socio-economic factors have been consistently shown to be deeply patterned and predictive of mortality and morbidities in the general population (Marmot et al., 2010). Nonetheless, as individuals with intellectual disabilities are generally at the lower spectrum of the socio-economic continuum with most individuals being unemployed, poorly educated and having marginal income due to their limited earning power, the use of conventional objective measures in this population is questionable. Recent research has considered the notion of subjective socio-economic status – a personal sense of their place in society and also referred to as socio-economic position or subjective social status – as being a more robust measure of socio-economic status. Significantly, an established evidence base and recent meta-analysis now support that this may be a more robust measure than crude objective measures of socio-economic status by measuring its association with health (Cundiff & Matthews, 2017). Nevertheless, what we know about subjective socio-economic status and health is largely based upon empirical studies

concerning the general population and therefore this scoping review set out to address our research question concerning its relationship with health in adults with intellectual disabilities.

Research methods

Consistent with our research objectives, the use of a scoping review was warranted to systematically search the available research evidence and establish a comprehensive and in-depth overview of this topic area. We followed Arksey and O'Malley's (2005) existing methodological framework that identifies five stages in the scoping review process: identifying the research question; identifying relevant studies; study selection; charting the data; and collating, summarising and reporting the results. To formulate a search for the research question, the PICO model (Richardson, Wilson, Nishikawa & Hayward, 1995) was deemed unsuitable as our question did not easily categorise into the elements of Patient/Population/Problem, Intervention, Comparison and Outcome and did not fit with our overall objective of scoping the literature for a broad concept. Subsequently, we follow the principle of search planning and created four components that were representative of our research question:

1. People with intellectual disabilities

2. Subjective socio-economic status

3. Health status

4. Objective social factors

Four databases were used in our search process: Cumulative Index to Nursing and Allied Health Literature [CINAHL], MEDLINE, PsycINFO and the Web of Science (SCI-EXPANDED, SSCI and A&HCI). Terminology and vocabulary surrounding intellectual disability are complicated and distinctive depending on the date, causation and location of use. For scientific purposes, intellectual disability is now internationally recognised; however, the use of mental retardation and learning disability whilst synonymous with intellectual disability are still used. Recognising such difficulties, a pearl harvesting methodology was followed. In the case of intellectual disability, Sandieson, Kirkpatrick, Sandieson and Zimmerman (2010) have advanced information retrieval techniques insofar as they have created a pearl- harvested synonym ring for intellectual and developmental disabilities. This is a set of keyword search terms specific to certain databases. The function of creating a synonym ring makes the keywords explicit to other authors, and subsequently, it allows other authors to build upon the original synonym ring if new terms are identified, or to exclude terms to attune the search. Synonym rings were not available for the three other components of our research question. In terms of subjective socio-economic status and health status, we followed the pearl growing and pearl building process (Booth, 2008) to identify keyword searches that were representative of the components under consideration. This was underpinned by firstly collecting and analysing keywords from a representative sample of articles to create our pearls and through using the specific thesaurus functionality in CINAHL, MEDLINE, PsycINFO and the Web of Science. The final process involved repeating the searches and refining the search terms before an exhaustive set of pearl grown terms were identified. Our final component, objective social factors existed by virtue of being the contrast of the previous two components. We were ambivalent about this, as though use was not being made of the PICO search framework,

this fourth component clearly identified with the 'C' – Comparison of the framework, so held some potential value; equally the 'C' is often omitted when using this framework, as this potential is not always fulfilled, rendering it superfluous or damaging. Initially we formed the opinion that the terms we had for this component would increase recall at the cost of precision, so excluded it. However, a recent meta-analysis (Cundiff & Matthews, 2017) identified objective social factors as a correlate to subjective social status and set out a search set to describe this same component. We tested it and found that it focused our final sets favourably, so included it to represent our final component.

After creating search sets for each database, we set an inclusion criterion that specified that research needed to be peer-reviewed, in the English language, be published since 1990 and concern adult individuals with intellectual disabilities.

Results

Our search returned 1345 potential articles for inclusion. There were imported into Covidence, a web-based software platform aimed at supporting the proficient production of systematic reviews. A further nine articles were sourced through alternative sources. After de-duplication, we had 1098 articles for inclusion. These were independently title and abstract screened by the first and second author. After title and abstract screening, 18 of these articles were identified as warranting full-text screening. The primary reason for excluding articles was due to the absence of an identifiable indicator that related to subjective socio-economic status. Of the 18 articles, there were no research studies that had a principal objective to specifically consider the relationship between subjective socio-economic status and health in individuals with intellectual disabilities. Consequently, it was

necessary to consider the derivatives of findings that were not the primary objective of the intended research. Nonetheless, within these articles, a number of patterns began to appear that were not entirely obvious at the outset and from the final search set of seven articles the following two themes were explored: (1) subjective socio-economic status indicators; and (2) the relationship between subjective socio- economic status and health. Whilst the end result of this scoping review is not the primary aim of this study, its implication for practice is.

Implication for practice

As noted in the introduction, the use of systematic and scoping reviews is becoming a more common journey for PhD students. However, it cannot be assumed that the PhD student will have acquired or developed the research skills needed to lead the review, calling instead for interprofessional collaboration. The concept of interprofessional collaboration (Reeves, Pelone, Harrison, Goldman & Zwarenstein, 2017) has arisen from the need for disciplines to shift the focus towards mutual partnerships and sharing of speciality-specific knowledge. Yet prior to undertaking this review as a health professional and research student, the need for non-clinical interprofessional collaboration was not fully appreciated, and indeed was considered questionable. With respect to the many initiatives in university libraries to provide guidance and assistance to students in the literature searching, the implications of this observation are potentially far reaching. It is undisputed that students should be developing their information literacy skills from the outset of their Bachelor's degree, and these skills should progress in tandem with their graduate and post-graduate education. However, this is all too often overlooked in reality and underlying this may be (to some extent) the student's questioning the need to develop their skills and/or to request

help from a non-clinical (or non-subject specialist), or indeed a graduate or professional questioning the need for some form of interprofessional collaboration. As the collaboration experienced in the conduct of the systematic search described in this study has consequently displaced the first author's (the PhD student) original understanding that surrounded his questionable need for these skills, it is worthwhile considering the level of learning and education that has occurred in respect of information science searching and retrieval in more detail. Whilst the information specialist's skills were positively exploited and harvested in this scoping review search, rather than being a passive provider of information in this endeavour, the information specialist did not merely complete the systematic search; working collaboratively and strategically they translated their knowledge and skills into a comprehensible approach to facilitate the researchers' learning and development. As a consequence, the evolution for information specialists from 'evidence locators' and "resource providers" to being quality literature filterers, critical appraisers, educators, disseminators, and even change managers' (Beverley, Booth & Bath, 2003, p. 65) was fully realised. The implications of this were considered by the researcher to be significant. First, as a developing researcher having positively experienced the influence that information specialists have in systematic search strategies, there is a greater understanding of how this is the first step into evidence-based health care. Secondly, having been exposed to and actively participated in the 'pearl growing', 'pearl building' and 'pearl harvesting' methodological approach, the researcher has acquired a new confidence in their ability to undertake a comprehensive systematic search. The skill of using this approach cannot be underestimated in the light of the narrow arena that the researchers work in. Taken together, these implications for practice suggest that through early interprofessional collaboration, information scientists cannot only influence specific research outcomes, and

they can also influence developing researchers who expect to shape their scientific discipline. Logically, this can only have a positive impact on patient outcomes.

Conclusion

The role of the information science specialist in this scoping review process was critical. Without their involvement, this review would not have been as successful. This review was positive insofar as we identified some key themes within the search results that we did not fully appreciate from the outset. In addition, a by-product of this collaboration emerged as a deeper level of learning and development occurred. This is almost certainly as a result of a hidden transformative learning process whereby through exposure and active participation the researcher transformed their understanding of information science, which encouraged a revised belief system that guided and will continue to guide future behaviours. Finally, a key message is the need for information specialists to collaborate with early stage PhD students across all disciplines. They are the future of their discipline and the collaborations of the future.

References

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. International Journal of Social Research Methodology, 8, 19–32. https://doi.org/10.1080/ 1364557032000119616

Beverley, C. A., Booth, A., & Bath, P. A. (2003). The role of the information specialist in the systematic review process: A health information case study. Health Information & Libraries Journal, 20, 65–74.

Booth, A. (2008). Unpacking your literature search toolbox: On search styles and tactics. Health Information & Libraries Journal, 25, 313–317. https://doi.org/10.1111/j.1471-1842. 2008.00825.x

Cundiff, J. M., & Matthews, K. A. (2017). Is subjective social status a unique correlate of physical health? A meta-analysis. Health Psychology, 36, 1109–1125. https://doi.org/10.1037/ hea0000534

Koffel, J. B. (2015). Use of recommended search strategies in systematic reviews and the impact of librarian involvement: A cross-sectional survey of recent authors. PLoS ONE, https://doi.org/10.1371/journal.pone.0125931

Marmot, M. G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post- 2010. Retrieved from: https://www.parliament.uk/docume nts/fair-society-healthy-lives-full-report.pdf

Moher, D., Stewart, L., & Shekelle, P. (2015). All in the family: Systematic reviews, rapid reviews, scoping reviews, realist reviews, and more. Systematic Reviews, 4, 183. https://doi.org/10.1186/s13643-015-0163-7

O'leary, L., Cooper, S. A., & Hughes-McCormack, L. (2018). Early death and causes of death of people with intellectual disabilities: A systematic review. Journal of Applied Research in Intellectual Disabilities, 31, 325–342. https://doi. org/10.1111/jar.12417

Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. Cochrane Database of Systematic Reviews, 6.

Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: A key to evidence-based decisions. ACP Journal Club, 123, A12.

Sandieson, R. W., Kirkpatrick, L. C., Sandieson, R. M., & Zimmerman, W. (2010). Harnessing the power of education research databases with the pearl-harvesting methodological framework for information retrieval. The Journal of Special Education, 44, 161–175.