Sheffield Hallam University

FAO: The Royal College of Occupational Therapists

A Report on the Contemporary Assessment of Occupational Therapy Research in the UK

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Contact:
Dr Nick Pollard
Faculty of Health & Wellbeing, Sheffield Hallam University,
Tel: +44 (0) 114 225 2416, email: n.pollard@shu.ac.uk

Prepared by Sheffield Hallam University, Sheffield, UK, S10 2BP

The Team

Dr Nick Pollard - Professional Lead in Occupational Therapy, Vocational Rehabilitation and Dietetics. Nick was responsible for the mapping of the literature onto specialist groups and the completion of the final report. Nick also provided professional expertise when required to do so.

Professor Shona Kelly - Professor of Interdisciplinary Health Research. Shona was responsible for the day-to-day management, including ethics application and financial management of the project, and completion of the final report.

Ms Deborah Harrop - Information Scientist. Deborah led on the literature review elements of the project. This included undertaking the initial search strategies and providing literature review training to the Research Associates

Mrs Elizabeth Flower - Senior Administrator. Elizabeth provided administrative support to the project team.

Mr Marcus Dearns - Research Associate. Marcus was responsible for the completion of the literature review and analysis for objectives iii and iv, as well as arranging and completing the interviews related to objective i, supporting in the development of the survey related to objective iii, social media activities and producing the final report for the project.

Miss Ming Chan - Research Associate. Ming was responsible for the development of the survey and the Access databases.

Miss Mehreen Afzal - Research Associate. Mehreen was responsible for the completion of the literature review and analysis for objectives iii and iv, as well as arranging and completing the interviews related to objective i and supporting in the development of the survey related to objective iii.

Miss Diane Munton - Research Associate. Diane was responsible for the completion of the literature review for objectives iii and iv, social media activities, as well as arranging and completing the interviews related to objective i.

Dr Lucy Perry-Young - Research Associate. Lucy was responsible for the completion of the literature review and analysis for objectives iii and iv, as well as arranging and

completing the interviews related to objective i, supporting in the development of the survey related to objective iii, social media activities and producing the final report for the project.

Miss Annie Severn - Research Associate. Annie was responsible for the completion of the literature review and analysis for objective iii and iv, social media activities, as well as arranging and completing the interviews related to objective i.

Miss Rachel Edler - Research Associate. Rachel was responsible for completion of the literature review for objectives iii and iv, as well as arranging and completing the interviews related to objective i.

Miss Ellie Hills - Research Associate. Ellie was responsible for completion of the literature review for objectives iii and iv.

Mr Nikolai Dubinko - Research Associate. Nikolai was responsible for the development of the survey and the Access databases.

Miss Amie Woodward - Research Associate. Amie was responsible for the completion of the literature review and analysis for objective ii.

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Executive Summary

The purpose of this report is to offer a Contemporary Assessment of Occupational Therapy Research in the UK. It is over a decade since *Building the evidence for occupational therapy: Priorities for research* (College of Occupational Therapists 2007) last benchmarked the state of occupational therapy research in the UK.

The current report is based on a multi-method approach comprising telephone interviews with representatives from RCOT accredited pre-registration degree programmes, a research performance indicators literature review, a general UK health research literature review, and an online survey with the profession's membership working within the UK or carrying out UK-based research. This work was carried out by a team of researchers and research associates from Sheffield Hallam University, College of Health, Wellbeing and Life Sciences. Data collection aimed for a broad approach so that early career researchers and occupational therapists based in practice could be included alongside researchers located in universities or research centres. Literature published before 2014 was not included. Ethical approval was given by Sheffield Hallam University's research ethics committee and regular meetings were held with an RCOT Steering Group for feedback and comment on progress.

This approach was used because occupational therapy research can be hard to identify as: it is often published in journals dealing with specific conditions; professional credentials of the authors are rarely listed, and occupational therapy is not well indexed in research publication databases.

The multi-method approach included:

1. multiple literature search strategies which looked for:
    a. (1) occupational therapy research, and (2) key performance indicators.
    b. (1) allied health professionals, and (2) key performance indicators, and (3) within a UK context.
    c. (1) occupational therapy research and (2) research about UK practice.
2. interviews to identify the scope and the scale of occupational therapy research institutions in the UK. Participants were recruited from the professional /programme leads of all the UK higher education institutions offering occupational therapy qualifications; promotion of the research project at the annual RCOT conference, and snowballing.
3. An online survey promoted through the RCOT annual conference, social media and an advertisement in OT News.

Key Findings

Findings indicated the extreme breadth of occupational therapy research amongst the UK body of just over 31,000 practitioners in England (https://www.hcpc-uk.org/resources/freedom-of-information-requests/2019/statistics-on-occupational-therapists---february-2019/). For example, the literature searches, and information provided in the survey, identified:

- Over 3,000 keywords,
- 387 articles in 149 journals at an average of 50 per year.
- 41% of papers were in occupational therapy or rehabilitation journals, of which the British Journal of Occupational Therapy was the most frequent (n=78); no other individual journal had more than 15 papers.
- The remaining 59% were in a wide array of journals covering health conditions/states such as aging, neurology, mental health, and dementia. This group of journals also contains general medical journals such as BMJ Open and 'trials registration' journals.

- Of 31 funded research projects identified in the survey 14 were worth over £50,000.
- 80% of the research was located in the UK.

Significantly there appeared to be a lack of studies originating from academic institutions or faculty only. The bulk of the selected papers were from a clinical setting, with papers from occupational therapists in academia focussing on student-related outcomes which were not perceived by the reviewers to meet the inclusion criteria and project objectives. We were not able to identify Research Performance Indicators (RPI) that assessed impact. This is something that needs to be addressed.

The interviews (n=36) were conducted with an academic at 31 out of 36 UK Higher Education Institutions (HEIs) that educate entry-level occupational therapists. A further five were carried out with researchers who were not affiliated with pre-registration occupational therapy programmes. These included one institution which had occupational therapy researchers in two different departments:

- The number of doctoral students since 2014 varied from none (13.9%) to 12 (see Table 8). The institutions with none included Russell Group and post-92 universities. Those educating four or more doctoral students were predominantly pre-registration occupational therapy educating institutions.
- One quarter of institutions had no staff with funded research since 2014. Although one of those had staff completing funded research where funding was granted prior to 2014. Five institutions had staff working on research consultancy.
- In total 30 institutions had staff working on at least one of research consultancy, secondments and/or research.
- The sources of research funding were consistent with the occupational therapy remit and, outside of the usual higher education research funders such as the National Institute for Health Research (NIHR), included charities, local authorities, the NHS, and consultancy.
- One third of institutions reported receiving funding from occupational therapy or Allied Health Professions (AHP) professional organisations and one quarter accessed internal university funds intended to initiate larger research projects.
- Most interviewees reported research collaboration with other UK HEIs
- There were relatively few collaborations with NHS organisations.
- Staff with sources of research funding, total amount of research funding, and type of research collaborators (see Table 12) were not systematically more common in institutions which are research intensive, except for the proportion reporting using internal university funds.
- In a separate set of interviews at the 2019 RCOT annual conference, participants pointed to a desire both from themselves and their colleagues to undertake research but emphasised the challenges that stood in their way.

The online survey was live for just over two months:

- 109 people met the inclusion criteria with 95% providing their name, 84% their email and 41% a link to their institutional profile page. The most common reason for exclusion is that they were not active researchers. It is not possible to calculate the representativeness of the sample as the number of occupational therapists actively engaged in research is unknown.
- Respondents were 87% female, one-third were aged 51-50 and 83% were based in England.

- One half had qualified since the millennium and one-third had a doctorate.
- Two-thirds of the respondents worked in an academic setting and two-fifths in clinical settings. Sixteen respondents reported that their "primary working areas" were in both an academic and clinical setting.
- Most of the survey respondents were RCOT members (105/109) with seven listing membership of more than one RCOT Specialist Section. Just under half did not select a Specialist Section.
- The majority of respondents to this survey were familiar with the Research Excellence Framework but only 10% were submitted in 2014. However, 40% expect to be submitted to the Research Excellence Framework in 2021 (see Table 17).
- Two-thirds of those with a doctorate and one-third of respondents with a master's degree were expecting to be submitted in 2021.
- Responses to questions about sources of research funding suggested that a mixed portfolio of funding is typical in occupational therapy research.

Occupational therapists work with many other professional groups and across a wide range of conditions and services. Many interventions are individually tailored around specific needs, while a context of considerable change, widening need, and the development of services seems to encourage opportunistic and underground research which is largely unfunded or self-funded.

The scope of the research was found to be diverse; but few of the occupational therapists in this study were found to have doctorates. Likewise, of the occupational therapy research identified in this study, very little was linked to doctoral study. Diffusion of scope may work against individual researchers within a profession, or their profession as a whole, developing a significant critical mass of expertise in any field. However, occupational therapy research has a value in supporting early career researchers and multi-site research projects. The majority of studies involve small numbers of people who access services and study participants from a wide variety of conditions, because occupational therapy offers interventions for all types of people with different health and care needs. This breadth is reflected in the outcome measures which include both quantitative measures of well-being but also qualitative measures including those such as social participation or life satisfaction. One significant issue identified was the need to improve occupational therapists' research skills, and to encourage greater involvement in research.

1. Approach

This is our report of the findings of the research undertaken in response to the call from the Royal College of Occupational Therapy (RCOT) for proposals to conduct a contemporary assessment of occupational therapy research in the UK. While the profession is 100 years old it is only at the beginning of an adoption of research into the professional culture. The Association of Occupational Therapy (which was predated in its 1936 formation by the Scottish Association of Occupational Therapy in 1932) issued a regular publication from June 1938, and the combined British Association of Occupational Therapy (BAOT) turned this into British Journal of Occupational Therapy (BJOT) in 1974, which is currently on volume 83. The first issue of the journal which was devoted wholly to research was published in 1982. The College of Occupational Therapy, a charity formed by BAOT in 1978 to advance professional, educational and research interests, set out its first research strategy set out in 1997 (p 42 in (1). An addition to dissemination opportunities at numerous professional events and its annual conference, RCOT provides members with news on research in its monthly OT News magazine, a Research Bulletin emailing that highlights occupational therapy research and opportunities in general, and offers Research Foundation Grants to its members. During 2019 and 2020, the James Lind Alliance is working with RCOT on a Priority Setting Partnership to identify the top ten research priorities for occupational therapy in the UK.

A similar situation with regard to research culture exists in most of the allied health professions (2) and has been noted in other countries (3-5) but evidence of effectiveness is required for modern healthcare systems to justify the provision of a particular type of care. The Royal College of Occupational Therapists recognises this and wants to benchmark the state of occupational therapy research in the UK, following on from its 2007 report: *Building the evidence for occupational therapy: Priorities for research (6)*. This report, based on a literature review, survey and with the profession's membership, identified a need for research into the effectiveness of occupational therapy as the main research priority for the profession. It also expressed the need for a significant increase in research of this nature to be identified before any future research prioritisation projects were undertaken *(6)*. In line with the RCOT's new research and development strategy (RCOT, 2019), it is valuable to identify contemporary occupational therapy research to evaluate if previous priority setting and research capacity building goals have been met, and to inform a new benchmark against which future progress might be measured.

Unfortunately, there is no easy way to identify occupational therapy research for three major reasons:

1) The research is often conducted with multidisciplinary teams and published in medical condition specific journals such as *Pediatric Rheumatology (7).*
2) Many journals (particularly the high-profile ones) no longer list the professional credentials of authors. Nor is occupational therapy research well indexed in the publication databases.
3) The UK Research Excellence Framework includes occupational therapy research within Unit of Assessment (UoA) 3 which includes allied health professionals, dentistry, nursing and pharmacy. Within that unit, occupational therapy is rarely presented as a discrete group, at least in part because of point 1 above. However, it is also important to remember that in the Research Excellence Framework 2014, and in the previous versions of the Research Assessment Exercise, the research outputs provided only a limited view as only high-quality research from selected researchers was selected for inclusion. Within the Research Excellence Framework (REF), high quality research in UoA 3 is defined as being original, significant and rigorous and it must be internationally recognised/relevant to be scored highly. The review panels determine the quality of the research without relying on the perceived rank of the journal (journal impact factor) as the panel recognises that allied health

professionals publish for widest dissemination within their profession. This is discussed more in the discussion (Section 6).

To identify the research, we developed the multi-method approach described below. We feel strongly that identifying only the ‘high-flyers’ in occupational therapy research is counterproductive and instead we proposed a broader collection of data to allow for the identification of 'green shoots' such as early career researchers or occupational therapists collaborating through their place of employment.

Please note that the findings reported are estimates because we did not have the resources to contact every occupational therapist and encourage them to reply to a survey.

2. Aims and Objectives

Aim

To conduct a contemporary assessment of occupational therapy research in the UK using a mixed methods approach.

Objectives

i: Obtain key, organisational level data about the overall range of research activities, number of post-graduate students, and staff research profiles in UK HEIs offering pre-registration occupational therapy education and other research centres relevant to occupational therapy.

ii: Identify and critique the research performance indicators (RPIs) used in occupational therapy research and those which could be transferable from other allied health professions.

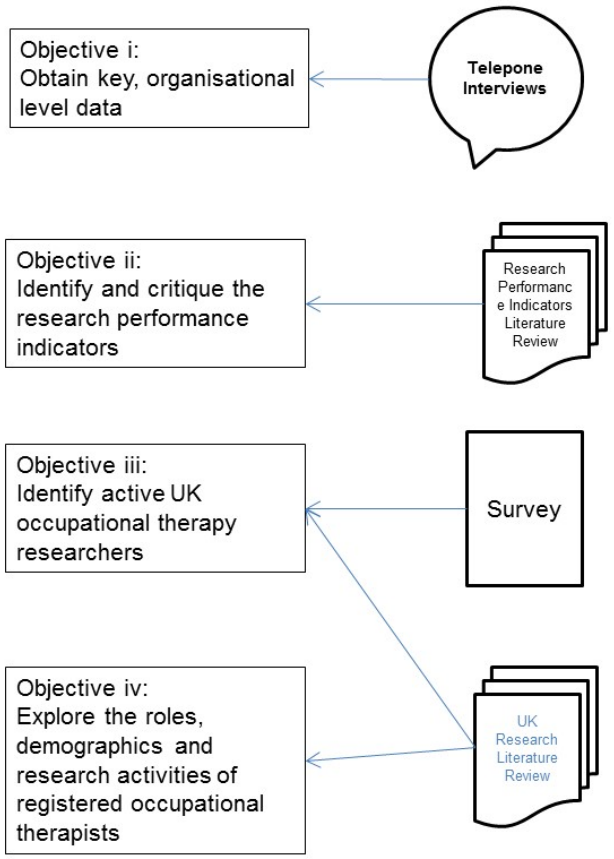
iii: Identify active occupational therapy researchers within the UK.

iv: Explore the roles, demographics and research activities of registered occupational therapists .

3. Methods

Objective i was addressed using telephone interviews, objective ii with a research performance indicators literature review, objective iii with a general UK research literature review and the survey, and objective iv with the survey. Please see the Handbook for a detailed description of the processes. A more concise summary is provided below (figure 1).

Figure 1 - Graphic Representation of Objectives and Methods



3.1 Literature Review

A comprehensive literature review was produced alongside protocols outlining the strategies and processes to be used in the study.

Multiple literature search strategies were undertaken.

A. The first search strategy, relating to objective i, searched for literature on (1) occupational therapy research, and (2) key performance indicators. A stepped approach was undertaken in this search with both UK and worldwide literature being considered. An initial pilot search suggested that literature yielded from a worldwide search on all allied health professionals and key performance indicators would produce too many results to screen.
B. The third search, relating to objective ii, searched for literature on (1) occupational therapy research and (2) research about UK practice.

For the literature review a Population, Intervention, Comparator, Outcomes, Context, Study Type (PICOCS) framework (see Table 1) was used to establish the parameters.

3.1.1 Search Process, Screening and Data Extraction

The databases used were MEDLINE (EBSCO) and CINAHL (EBSCO). Publications were restricted to those published in 2014 through to the present date. The rationale for this date range was the nature of the type of review, combined with the contemporary scope of this research, and the timeframe of the current Research Excellence Framework cycle which began in 2014. All papers yielded from the literature searches were exported to RefWorks and duplicate papers removed.

Literature was also identified in two other processes

A. At the RCOT annual summer conference participants were sought for the survey component which asked for a link to academic research webpages.
B. The snowballed survey asked for a link to academic research webpages which were abstracted.

Due to the research objectives being broad in scope and the findings needing to provide a thorough, but not exhaustive, overview of the topic, searching was stopped when 'saturation' was reached, i.e., no new (a) ideas/concepts, or (b) researchers were being found. Publications were restricted to those published in 2014 through to the present date. The rationale for this date range was the nature of the type of review, combined with the contemporary scope of this research, and the timeframe of the current Research Excellence Framework cycle which began in 2014.

Screening of the papers took place in stages:

- Preparation - All project staff screened the first 100 papers and discussed a common and agreed approach to the screening process that was in line with the literature review protocols.
- Stage 1a - Title and abstract screening
- Stage 1b - Full text screening

At stages 1a and 1b, a 10% check was done via a second reviewer. Screening was completed blind to ensure independent decisions. Any discrepancies were discussed and resolved. If they couldn't be resolved by discussion, then a third reviewer (SK or DH) was asked to review the paper.

Table 1 - The PICOS Framework for the Literature Review Protocol

Objective A1	Identify and critique the research performance indicators (RPIs) used in occupational therapy research and those which could be transferable from other allied health professions.
	Population - any occupational therapy research. This includes research completed by occupational therapists working in clinical, academic, third sector and government roles. Also of interest, is research conducted by occupational therapists, who are not employed as occupational therapists, but work within organisations such as Housing and are completing occupational therapy research because of their role. The review also considered research completed by other Allied Health Professionals (AHPs) in order to identify RPIs which may be transferable to occupational therapy. **Intervention** - any type of research **Comparator** - papers are eligible for inclusion irrespective of whether a control has been used. **Outcomes** - papers that state any types of outcomes provided they can be attributed, at least partially to occupational therapists and occupational therapy activities. **Context** - papers reporting any type of setting are eligible for inclusion. **Study Type** - any qualitative, quantitative, mixed methods or review papers are eligible for inclusion. Opinion, editorial and commentary papers will be excluded.
Objective A2	Identify active occupational therapy researchers within the UK or carrying out UK based research, their role, and the focus of the research that they are undertaking.
	Population - (1) UK based, HCPC registered, occupational therapists carrying out research fully or partially located in the UK, or (2) non-UK based HCPC registered occupational therapists carrying out research fully or partially located in the UK or (3) UK based, HCPC registered, occupational therapists carrying out research not located in the UK. This includes occupational therapists working in clinical, academic, third sector and government roles. Also of interest are HCPC registered occupational therapists, who are not employed as occupational therapists, but work within organisations such as Housing and are undertaking occupational therapy research because of their role. In exceptional circumstances some people may not be HCPC registered, but their research may be considered for inclusion in this review. **Intervention** - any type of intervention provided that it is attributed, at least in part, to an occupational therapist (as defined in 'Population') and is a type of occupational therapy research. Service evaluations will not be included. We recognise the boundary between primary research and service evaluations can be ambiguous due to the fact that service evaluations can be published in journals and also can utilise a number of primary research methods. **Comparator** - papers are eligible for inclusion irrespective of whether a control has been used. **Outcomes** - provided that research can be attributed, or at least partially attributed, to occupational therapists, their occupational therapy research can have any type of outcomes e.g., positive, negative or inconclusive. **Context** – The research can have been undertaken in any type of setting.

	Study Type – Primary, qualitative, quantitative or mixed methods research, and review papers. Grey literature may be used in some circumstance.

For objective i, data were extracted as follows: bibliographic information; author (s), institutional affiliations, allied health profession (if relevant), RCOT special interest group (if applicable). Study information; location, study type, design, research question and objectives. Intervention details; description of intervention, recruitment and sampling procedures, methods of data collection, validation, recording, and analysis. Study outcomes; outcomes and duration of follow-up. KPI characteristics; description of the KPIs, how they were determined, efficacy, theoretical underpinning.

For objective ii the identified publications were analysed and the information as follows was extracted: bibliographic information; author/s details including job title, institutional affiliation/s, Health and Care Professions Council (HCPC) registration details; and author's position in the author list. Study information extracted included: study design, study type, research question and/or aim and objectives, and the location. The overall theme/s of the research were mapped to RCOT special section descriptions and/or areas defined specifically by this project, and these were also extracted. For example, a paper about developing an app that assists individuals at risk of falling in identifying home-hazard fall risks was categorised as meeting the specialist section theme of Housing as well as the project-derived theme Evaluating Specific Practices. Desired data items not reported in a paper were recorded as unavailable. During this process linked papers and authors were identified. Due to the research objectives being broad in scope and the findings needing to provide a thorough, but not exhaustive, overview of the topic, searching was stopped when 'saturation' was reached, i.e., no new (a) ideas/concepts, or (b) researchers were being found.

For both objectives, data extraction was assigned to individual reviewers and 10% checked by a second reviewer. The process was piloted by core members of the review team on at least two papers. An a-priori data extraction template was used. The form (Handbook in Appendix 3) drew on the quantitative and qualitative templates developed by Booth, et al. (8), with additional data items added to reflect the scope of the review.

3.2 Interviews

The interview part of the project aimed to identify the scope and the scale of occupational therapy research in institutions in the UK.

The interview participants were recruited in a variety of ways:

- RCOT provided the research team with a contact list of the professional/programme leads of all the UK higher education institutions that offer entry level occupational therapy qualifications.
- The project team set up a stand at the 2019 RCOT annual conference to promote the research project. Several participants were recruited this way.
- Two HEIs came from the snowballed survey link

Marketing was done primarily via social media platforms, e.g. occupational therapy professional groups on Facebook, Twitter (such as OTalk https://otalk.co.uk/), LinkedIn, ResearchGate, and Instagram, as well as industry publications such as OTNews.

Participants were asked to snowball the project onto colleagues who might be interested in participating. Some of the participants offered to share the project via personal social media pages e.g. retweeting.

During the development phase, the project team developed a list of interview questions based on the objectives set out, which were presented during a meeting with the RCOT Steering Group for feedback and updates. A pilot interview was done internally within the university faculty for testing purposes.

Interview appointment bookings were organised by the research associates at the faculty. The research associates carried out telephone interviews, during which notes were taken to be later input into the database, and audio recordings were made to ensure quality and that all the information required was captured. All interviewers 'shadowed' an experienced interviewer before working independently. All interview contact details were assigned a code in an Excel spreadsheet which the research associates used to identify the interviewee. This code was used on the notes and the database. Participants were sent a copy of the interview questions, a participant information sheet and a participant consent form to complete electronically prior to their scheduled interviews. If the consent form was not returned prior to the interview, then the interview was re-arranged to give time for the participant to read the information sheet thoroughly before returning the consent form.

At the start of each interview, participants confirmed that they had read and understood the participant information sheet and the interviewer ensured that a consent form had been received. Although interviews were structured, additional clarifying questions were asked, where appropriate, and participants were invited to share additional information they felt to be relevant.

The interview data was analysed using R/SAS/Python - details on the analysis process can be found in the *Data Analysis* section.

The interview process was carried out over a total duration of 13 weeks, during which both follow-up calls and emails were made at weeks one, four and 12 to potential participants to ensure the number of responses collected was as high as possible. Individuals were contacted at the beginning of July, August and September. During the follow-up calls, the team also informed the participants that this project was distinct and captured different information compared to the RCOT commissioned membership interviews that were happening concurrently.

Potential participants from the occupational therapy programme list provided by RCOT and from the list of interested delegates of the RCOT conference were initially contacted by email. If a response was gained this way, then an interview was undertaken with this person or a they person recommended who had a more enhanced overview of occupational therapy research themes at that institution. If the second attempt to contact the recommended person was unsuccessful (e.g. after 2 emails and 2 calls), a further search was completed by a research associate. In this search the staff profiles of occupational therapy staff on that institution's website were examined. University staff with a background in occupational therapy research were identified and contacted via phone call and email alongside one further attempt to contact the original identified participants (a final phone call and email).

Institutions were classified into five categories:

a) educates pre-registration occupational therapists
b) the university has a medical school
c) a Russell Group university
d) meets criteria a-c inclusive
e) not a higher education institution

3.3 Survey

The survey part of the project aimed to identify research active and HCPC registered occupational therapists in the UK, with a project that was completed between 2014 to present. This also included ongoing projects due to be completed after 2019.

3.3.1 The Survey Process

The participants for the survey were recruited in a variety of ways:

- The project team set up a stand at the 2019 RCOT annual conference to promote the research project, and discussed the project in a session during the conference programme. From this a number of participants were recruited. A contact list of interested participants was put together and the survey was distributed via email to these participants.
- Marketing was done primarily via social media platforms e.g. OT professional groups on Facebook, Twitter (such as OTalk https://otalk.co.uk/), LinkedIn, ResearchGate (https://www.researchgate.net/project/A-Contemporary-Assessment-of-Occupational-Therapy-Research), Instagram, and industry publications such as OTNews.
- Survey participants were asked to pass on the study information and invite any interested colleagues to complete the survey. Some of the participants offered to share the project via personal social media pages e.g. retweeting.

During the development phase, the project team developed a list of survey questions including those initially set out in the contract, as well as questions informed by conversations held at the 2019 RCOT conference. The survey was piloted internally by Sheffield Hallam University's Occupational Therapy teaching and research staff to test its suitability to the objectives and viability (e.g. is the length of the survey too long? Do they capture the information the team wants to collect?) *SAP Qualtrics,* an online survey management platform, was used to collect responses. The participant information sheet and the participant consent form were embedded in the electronic survey. It was emphasised that any uniquely identifiable information provided by the participants would be anonymised, not published, and would be used for the purpose of this research only.

A total of 36 questions were designed (see Appendix A or a full list of the questions), which contained the following sections:

- Introduction – providing a summary of the project, , the maximum number of questions, and the estimated completion time
- Consent - with the participant consent form information embedded and linked to the participant information sheet
- Eligibility questions - ensuring participants were active researchers and HCPC registered.
- Demographic information - including names, gender, age, and geographical base
- Professional qualifications - details on the categories of HCPC qualifications, other professional qualifications including those that allow someone to also register with the Nursing and Midwifery Council (NMC), and whether the person is currently a member of RCOT
- RCOT Specialist Sections the person belongs to

- Primary working areas and sectors
- Job title
- University appointments
- Academic qualifications - including the year when the participant become professionally qualified, and the highest academic qualification held
- Knowledge and participation in Research Excellence Framework 2014 and Research Excellence Framework 2021
- Research funding information - including primary sources of research funding, largest funding value, and participation in unfunded research
- Unfunded research details
- How a respondent linked current research into teaching with examples
- A request for contact details - including institutional webpage and email address

The survey flow was designed such that only HCPC-registered occupational therapy researchers, with active research projects that had completed from 2014 to present, could participate in the survey. Those who did not fit the criteria were redirected to the end of the survey. Participants were only shown questions that were relevant to them as a result of their responses (e.g. they were only asked about their university position if they had stated that their primary working sector was academic).

The survey was live for a total of 12 weeks, during which email reminders were sent out at weeks one, four and 12 to potential participants to maximise the number of responses collected. In the reminders, the team also included a message to differentiate the project from the RCOT commissioned membership survey happening concurrently.

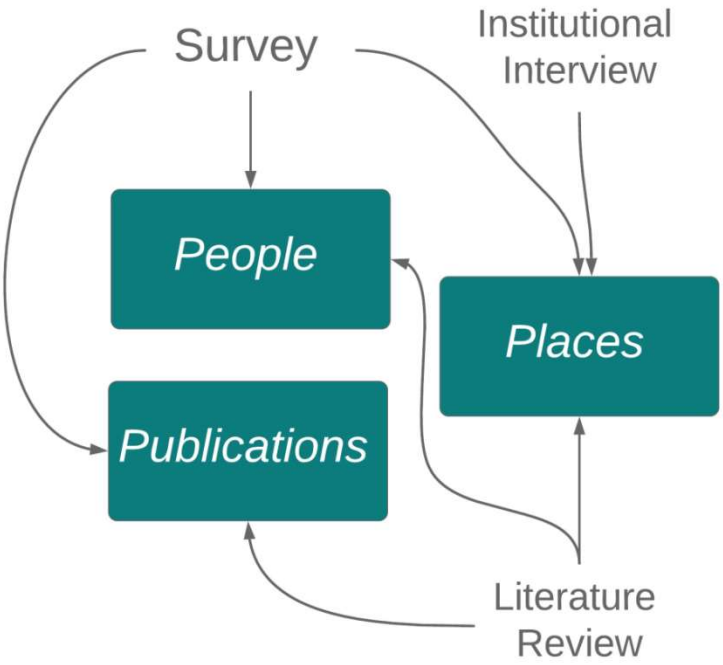
3.3.2 Data Cleaning and Analysis

Information that identified who was involved in research, which institutions were involved, and the actual publications was collected from multiple sources (see Figure 1 below).

The survey data was exported from Qualtrics in comma separated values format (.csv), and data cleaning, data integrity and validity checks were performed before they were loaded into the database in the university secured research store. These checks included:

- Missing values check (either from Refworks or from import errors) - missing values were populated where time allowed
- Range validation - checked for outliers (e.g. age beyond 90 indicated further investigation was warranted)
- Data type check - checked for correct data type (e.g. age must be numerical)
- Re-coding (especially for the responses for "other (please specify)") - some responses were recoded into existing categories but, if necessary, new categories were created
- Consistency check – checked whether data had been presented consistently in every row (e.g. were authors credited in last name - first name conventions consistently?)
- Spelling check

Figure 2 - Graphic Representation of the Databases (green boxes) and Sources of Data



Pre-processing

More detail is available in the accompanying Handbook but, in brief, since the literature review protocols were Microsoft Word documents, the data from them was extracted using Python programming language with specialized extraction libraries. The data were then grouped into two main categories, namely papers and authors, and transformed into a tabular form with the help of another Python library, Pandas, which provides a wide range of tools for data handling and is the *de facto* modern standard of data science and analysis. Additionally, the same transformations were performed on the survey and interview data to have a unified representation of all data sources in the research and, consequently, be able to carry out analysis when they were combined.

Due to the survey and the manual nature of the data extraction templates, a data cleaning stage was especially important and helped to identify typographical errors, inconsistencies, duplicates and missing values. This additional data processing included mapping the existing institutions and locations into new categories such as 'academic', 'National Health Service' (NHS), etc.

Analysis

The data analysis was conducted to answer the research objectives detailed in the earlier sections. The most relevant objectives for the cleaning and analysis stage were iii and iv which raised the questions about demographics of occupational therapy researchers. The following information was determined:

- The number of active occupational therapy researchers
- The institutional affiliation of occupational therapist researchers
- The location of occupational therapy research
- Mapping onto the RCOT Specialist Sections

- The job affiliation of occupational therapy researchers

The precise findings are provided in the corresponding sections followed by synthesis and discussion.

Files Representing Different Data Sources

Since the Pandas data structures are not easily accessible by those who are not programmers, the data was imported into a Microsoft Access database, which provides a user-friendly way to inspect and search information. The following is a list of tables (files) representing different data sources:

- people - people from papers and survey
- papers - found occupational therapy papers
- rcot survey - data from survey
- phoneinterview - data from phone interviews
- contacts_A_fromrcot - contacts of potential people for the interviews provided by RCOT
- contacts_B_rcotconference - contacts of people from The RCOT Conference 2019 who consented to participate in the research
- auth_institutions - auxiliary table for people - institution relations
- auth_papers - auxiliary table for people - paper relations

There are two forms provided for search convenience: one can find people by their last name or HCPC registration number and another can find institutions by their name. The result of the people search provides their institutional affiliation, RCOT Specialist Section mappings of the research, and papers. The result of the institution search shows institutions with the people and papers affiliated to them. Note, this is the affiliation at the time the paper was published.

3.4 Ethics

Research ethics approval (certificate ER 14712795) was received from Sheffield Hallam University's research ethics committee after submission of the following documentation:

- A participant information sheet
- A participant consent form
- Data management plan
- A list of all the interview questions

4. Findings

This section reports separately on the findings from: the literature review (section 4.1), the interviews (Section 4.2), the survey (section 4.3), and the research performance indicators literature review (section 4.4). The separate findings are synthesised in Section 5.0, with sections on People (Section 5.1), Places (Section 5.2), and Papers (Section 5.3).

4.1 The Identified Occupational Therapy Literature

4.1.1 Basic Description of the Literature Identified

There were 387 papers identified, 284 in the original literature review and an additional 103 from weblinks provided by the survey respondents. Three hundred and eleven authors with an occupational therapy connection were identified, of which 267 (86.0%) were HCPC registered. Papers were published in 149 different journals. The British Journal of Occupational Therapy was the most frequent journal (n=78) and no other individual journal had more than 15 papers.

A total of 158 (40.8%) of the papers were published in occupational therapy or rehabilitation journals. Beyond these 158 papers, there was a significant breadth of journals demonstrating the 'broad church' of the discipline. We have not recorded journal impact factors (JIF) as Unit of Assessment 3 in the Research Excellence Framework explicitly rejects using JIFs for AHP research, but we have classified the journals into:

- occupational therapy and rehabilitation - N = 158
- other medical - these papers covered a wide array of health conditions/states such as aging, neurology, mental health, dementia. This group also contains general medical journals such as BMJ Open and 'trials registration' journals - N = 210
- non-medical including: education of health professionals, health technology, health informatics, housing, etc. - N = 19

Between 2014 and 2019 we found that 207 authors had published a single paper, 47 had published two papers, 26 had published three papers and 31 had published between four and 27 papers. This type of distribution is common in real-world data and we followed common practice of categorising the data into groups of approximately equal size starting with the zero or no publications group. This approach was also applied to other similar distributions such as the number of doctoral students or the numbers of grants held.

The number of publications per year is consistently over 50 (see Table 2). The link to research webpages provided by the survey respondents added between 15 and 25% to the number of research papers for each publication year. The papers from 2019 at the time of the literature review may not have all been available within the research databases at the time of the study, which may explain why a higher percentage of papers were found through the provided weblinks in 2019 in comparison to previous years.

Table 2 - Number of Publications Per Year

	All	from Lit Review	from survey
Publication Year	**N**	**% of row**	**% of row**
2014	54	39 (72.2%)	15 (27.8%)
2015	79	63 (79.7%)	16 (20.2%)
2016	64	48 (75%)	16 (25%)
2017	78	55 (70.5%)	23 (29.5%)
2018	65	50 (76.9%)	15 (23.1%)
2019 *	47	29 (61.7%)	18 (38.3%)
Total	387	284	103

* partial year

A more thorough classification of the research designs was not part of the remit but the study design, as described by the authors, was extracted and analysed. Similar to Table 3, the literature review identified about 75% of the research. This is discussed more at the end of this section.

Table 3 - Type of Research

	All	From Lit Review	From Survey
Type	**N (%)**	**N (% of row)**	**N (% of row)**
Mixed Methods	68/387 (17.8%)	76.5%	23.5%
Qualitative	184/387 (47.4%)	74.5%	25.5%
Quantitative	135/387 (34.8%)	70.4%	29.6%

Qualitative research was the most favoured method used in published occupational therapy research which is consistent with the individually tailored approach to care provision by occupational therapists. Just over one-third is quantitative. A wide variety of research approaches were used. Amongst the qualitative research, interviews dominated as the method of data collection, but the theoretical approach (e.g. phenomenology) was rarely provided. Quantitative research was often based on survey data collection but randomised controlled trials (RCTs) and quasi-experimental designs were common as well. A small amount of the quantitative research involved laboratory-based experimental designs or case series.

4.1.2 Research Area of Papers

The topics covered in the papers were mapped onto the RCOT Specialist Sections using the RCOT descriptions of the sections provided in the publication, “Which Specialist Section is right for you?” (available at https://www.rcot.co.uk/about-us/specialist-sections/about-specialist-sections) . Additional research topic areas were created by Nick Pollard from a list of 30 topic areas generated by the research associates. These additional topic areas derived by the research team included:

- 'Widening provision' - quality of life for disease survivors, experience of life transitions, the value of leisure, occupational justice, occupation and asylum seekers or the homeless, and wheelchair design

- 'Researching the occupational therapy remit' - educating students and the public (such as carers), continuing professional development (CPD), practice settings, professionalism, and occupational science
- 'New frontiers' - the use of virtual reality, emergency services, emerging roles, and driving
- 'Evaluating specific practices' – pressure ulcer risk management, care after hip replacement, and evaluation of assessments, interventions and outcome measures

While the survey respondents' papers were predominantly classified into SIG01/Children, Young People and Families, SIG04/Mental Health, SIG05/Neurological Practice and SIG06/Older People, the literature review found 73% of the papers were classified as SIG09/Trauma and Musculoskeletal Health and 82% were classified 'Researching the occupational therapy remit'. See Table 4.

Table 4 – Where is the Research Found: Mapping of the Research Topics onto RCOT Specialist Sections and Project Derived Additional Themes

	All	**From Lit Review**	**From Survey**
RCOT Specialist Section Themes	**Count***	**% of row**	**% of row**
SIG01/Children, Young People and Families	51	80.4%	19.6%
SIG02/Housing	9	77.8%	22.2%
SIG04/Mental Health	52	63.5%	36.5%
SIG05/Neurological Practice	64	73.4%	26.6%
SIG06/Older People	60	51.7%	48.3%
SIG07/Oncology and Palliative Care	7	100%	-
SIG08/People with Learning Disabilities	12	91.7%	8.3%
SIG09/Trauma and Musculoskeletal Health	41	73.2%	26.8%
SIG10/Work	15	73.3%	26.7%
Project Derived Additional Themes			
Widening Provision	34	67.6%	32.4%
Researching the Occupational Therapy Remit	49	81.6%	18.4%
New Frontiers	15	73.3%	26.7%
Evaluating Specific Practices	14	100%	

* some papers could be classified into more than one category

The geographical location of the research (Table 6) was predominantly within the UK, although for a significant proportion the location of the research was not stated.

Table 5 - Geographic Location of the Research

Country	count
Australia	14
Bangladesh	1
Brazil	1
Canada	2
Germany	1
Greece	1
Iran	4
Ireland, Republic of	4
Japan	1
multiple countries	3
Norway	1
Puerto Rico	2
Singapore	1
Slovenia	2
South Africa	2
Switzerland	1
UK	308
USA	1
not stated or missing	37

An attempt was made to determine whether there was a pattern in which research was missed by the literature review. Assessing journal titles, there was no consistent pattern. For example:

- Among the 11 titles in the Biomed Central (BMC) group there were 28 papers in total, of which 20 came from the literature review and 8 from weblinks.
- Even among rehabilitation and occupational therapy journals, the literature review did not identify all the papers.

A review of the journal titles suggests that the occupational therapy presence in multi-disciplinary teams is difficult to tease out. Whilst there were a large number of papers that were available in occupational therapy-based journals and written exclusively by occupational therapists, (e.g. many of the papers found in BJOT), we also found a wide range of papers written by occupational therapists in journals targeted at other professionals or multiple professions. For example, Twiddy, Hanna and Haynes (9) *Growing pains: Understanding the needs of emerging adults with chronic pain* includes both clinical psychologist and occupational therapists amongst its authors. This paper can be found in the non-profession-specific 'British Journal of Pain'. Another example of multidisciplinary authorship within a non-profession-specific journal was a research paper that included work completed by an occupational therapist, a neurologist and a research physiotherapist. This paper, written by Kelly (10), was published in the journal 'Child: Care, Health and Development' and was titled *Using child- and family-centred goal setting as an outcome measure in residential rehabilitation for children and youth with acquired brain injuries: The challenge of predicting expected levels of achievement*. This type of research indicates strong interprofessional health integration but also demonstrates the difficulty of identifying where research occupational therapists are involved in.

4.2 Findings from Interviews

Interviews took place between the 23rd of July 2019 and the 30th of September 2019. In total 36 were completed. Thirty-one (86.1%) of the interviews were with an employee of an academic institution that educates pre-registration occupational therapists. This represented 31/36 (86.1%) of all UK institutions that educate pre-registration occupational therapists. The remaining five interviews were with researchers not affiliated with pre-registration occupational therapy education programmes, including one institution that had occupational therapy researchers in two different departments.

4.2.1 The Person Interviewed and the Process of Interviewing

The academic rank of the person interviewed (Table 6) varied considerably and depended upon the organisational structure of the institution.

Table 6 - Rank of the Person Interviewed

	All	Occupational Therapy Institutions	Other Institutions
	N (%)	N	N
Rank of Person Interviewed			
Programme Lead	8 (22.2%)	8	0
Professional Lead	2 (5.6%)	1	1
Professor	1 (2.8%)	0	1
Assistant Professor	1 (2.8%)	1	0
Associate Professor	2 (5.6%)	2	0
Reader/Principal Lecturer	4 (11.1%)	4	0
Senior Lecturer	10 (27.8%)	10	0
Lecturer	1 (2.8%)	1	0
Research Associate	1 (2.8%)	0	1
unable to classify	6 (16.8%)	4	2
Total	36	31	5

By providing participants with the interview questions in advance and allowing them time, on some occasions up to a month, to communicate with others throughout their university who were undertaking occupational therapy research, we were able to uncover an in-depth knowledge of the work being undertaken throughout a university.

When discussing occupational therapy staff at their institution, interviewees often referred to both staff working within their occupational therapy teaching department and occupational therapy staff working within the wider institution. The latter were generally staff employed for their research expertise who sat within research groups. For the purpose of the interviews, all occupational therapy staff working at the educational establishment were included in the interview data. Due to the far-reaching role of occupational therapy, there was no pattern of typical research groups that occupational therapists belonged to outside of occupational therapy teaching departments. The wide spread of occupational therapists within HE establishment (coupled with other factors such as occupational therapy departments

being immersed within wider health departments at some universities, and so lacking a distinguishable staff list) also made it difficult to produce an accurate overview of the number of occupational therapists working at each university. Therefore, some statistical analysis, such as the percentage of occupational therapists working at universities with doctorates, has not been collected.

4.2.2 Research Education and Research at the Institutions

The number of doctoral students supervised since 2014 varied from none (13.9%) to 12 (see Table 7). The institutions with none included both Russell Group and post-92 universities, while those educating four or more were predominantly post-92 universities. There was no relationship between an institution having no staff with a doctorate or working towards one and having doctoral students (Table 8). Given the variety of ways in which occupational therapy is distinguished, or not distinguished, from other health professions within university departments, it was not possible to calculate the percentage of occupational therapy staff holding a doctorate.

Table 7 - Research Education, Including Doctoral Students and Staff with Doctorates, Since 2014

	All	Occupational Therapy Education Institutions	Other Institutions
	N(%)	N	N
Number of Doctoral Students Since 2014			
none	5 (13.9%)	5	0
1	5 (13.9%)	2	3
2	7 (19.4%)	6	1
3	6 (16.7%)	6	0
4-12	10 (27.8%)	9	1
Missing	3 (8.3%)	3	0
Number of Staff with Doctorates			
none	5 (13.9%)	3	2
1	7 (19.4%)	5	2
2	5 (13.9%)	5	0
3	6 (16.7%)	6	0
4-10	13 (36.1%)	12	1
Number of Staff Working on Doctorates			
none	5 (13.9%)	5	0
1	10 (27.8%)	7	3
2	10 (27.8%)	8	2
3	9 (25%)	9	0
4-6	2 (5.6%)	2	0

Almost one quarter of institutions (8/36) had no staff with funding for research since 2014 (see Table 9). Amongst those eight institutions, one had staff who completed work such as writing up findings during the time period and five had staff working on research consultancy. Overall, 25 institutions had staff working on at least one of research consultancy, secondments and/or research. The institution with the largest

amount of occupational therapy research does not educate pre-registration occupational therapists. Except for one Russell Group institution and two non-HEIs, the remainder of research active institutions all educated pre-registration occupational therapists.

Table 8 - People Involved in Research at the Institution Since 2014

	All	Occupational Therapy Institutions	Other Institutions
	N (%)	N	N
Number of Staff Members with Funded Research			
None*	8 (22.2%)	7	1
1	8 (22.2%)	6	2
2	8 (22.2%)	8	0
3 or more	9 (25.0%)	8	1
Missing	3 (8.3%)	2	1
Number of People on Funded Research			
None*	12 (33.3%)	10	2
1	7 (19.4%)	6	1
2	6 (16.6%)	6	0
3 or more	8 (22.2%)	6	2
none/missing	3 (8.3%)	3	0
Number of People in Research Consultancy			
None*	11 (30.5%)	7	4
1	6 (16.6%)	6	0
2	3 (8.3%)	3	0
3	4 (11.8%)	4	0
4 ore more	10 (27.8%)	9	1
None	2 (5.6%)	2	0
Number of People in Research Secondments			
none	28 (77.8%)	27	1
1	6 (16.7%)	4	2
3	1 (2.8%)	0	1
11	1 (2.8%)	0	1

*categories created to produce approximately equal sized groups (excluding the missing)

Determining the number, amounts and source of research funding since 2014 was difficult. Providing the questions to interviewees prior to the interview supported institutions to find or generate this data in preparation for their interview. However, not all the interviewees were able to give a full account of the information asked for or they were unable to separate the occupational therapy research from broader departmental research (see Table 10). From the links to webpages that were supplied to us to identify grants awarded for occupational therapy research, we were often referred to generic webpages. These included a range of projects in which, unless it was named as such, it was difficult to identify occupational therapy research.

Table 9 - Number, Amounts and Source of Research Funding Since 2014

	All	Occupational Therapy Institutions	Other Institutions
	N (%)	N	N
Number of Research and Consultancy Grants Since 2014			
none	5 (13.9%)	4	1
1	3 (8.3%)	3	0
2	3 (8.3%)	3	0
3	3 (8.3%)	2	1
4	2 (5.6%)	1	1
5	4 (11.1%)	4	0
7 or more	7 (19.4%)	6	1
Missing	9 (25%)	8	1
Total Funding Amounts Since 2014			
none	7 (19.4%)	6	1
£1 - 39,999	6 (16.7%)	6	0
£40,000 - 100,000	7 (19.4%)	5	2
£ 100,000 +	8 (22.2%)	7	1
missing	8 (22.2%)	7	1
Funding Source - tick all that apply			
Charity	15 (41.7%)	13	2
Local Authority	4 (11.1%)	4	0
NHS organisations	9 (25.0%)	8	1
OT/AHP professional organisations	12 (33.3%)	12	0
National funding; government, competitive research councils UK (RCUK), NIHR	14 (38.9%)	11	3
Internal university funds	8 (22.2%)	6	2
EU	2 (5.6%)	0	2
HEE	4 (11.1%)	2	2
Consultancy/expert Services	4 (11.1%)	4	0

The sources of research funding were consistent with the occupational therapy remit and, outside of the usual higher education research funders such as the National Institute for Health Research (NIHR), included charities, local authorities, the NHS, and consultancy. One third of institutions reported receiving funding from occupational therapy or AHP professional organisations and one-quarter accessed internal university funds intended to initiate larger research projects.

Most interviewees reported research collaboration with other UK HEIs and many with others across the world. There were also some universities with regional collaborations, such as the Bristol Robotics Lab, in which occupational therapists participated. There were relatively few collaborations with NHS organisations, and where these occurred, they were generally focussed around people managing in the community. Of interest, are the collaborations with government bodies, charities, or small companies such as *Homes England* or *Sport for Confidence* and whether this work produces published research. Future research could investigate whether, for any collaboration outside of academia, the work converts into published research.

It was hypothesised that there might be a research advantage by being in an institution that was research intensive (such as the Russell Group institutions) and/or in one with a medical school. The institutions were divided into two groups: 1) those who were pre-registration occupational therapist educating institutions (N=22) and, 2) those who educated pre-registration occupational therapists in the purportedly more research-intensive environment (N=12). The two institutions that were not HEIs were excluded. The following tables explore this in more detail.

Table 10 - Doctoral Students and Staff with Doctorates by Type of Higher Education Institution

	Occupational Therapy Educating Only **n=22**	**Occupational Therapy Educating and Research Intensive** **n=12**
Number of Research Doctoral Students Since 2014		
none	2 (9.1%)	3 (25%)
1	1 (4.5%)	3 (25%)
2	5 (22.7%)	1 (8.3%)
3	6 (27.3%)	0 (0%)
4+	7 (31.8%)	3 (25%)
Missing	1 (4.5%)	2 (16.7%)
Number of Staff with Doctorates		
none	1 (4.5%)	3 (25%)
1	3 (13.6%)	3 (25%)
2	4 (18.2%)	1 (8.3%)
3	4 (18.2%)	2 (16.7%)
4+	10 (45.4%)	3 (25%)
Number of Staff Working on Doctorates		
none	3 (13.6%)	2 (16.7%)
1	5 (22.7%)	4 (33.3%)
2	8 (36.4%)	4 (33.3%)
3+	6 (27.3%)	2 (16.7%)

Table 11 examines research doctoral student status and doesn't support the hypothesis as an approximately equal proportion of institutions have 4 or more doctoral students and more staff have doctorates in institutions providing pre-registration occupational therapy education than in research intensive institutions providing pre-registration occupational therapy education.

As with research qualifications, funding sources, amount and collaborators (see Table 12) are not systematically better represented in institutions which are research intensive, with the exception of the proportion reporting using internal university funds. It is likely that these funds are not universally available at all institutions and that there may be a longer tradition of them in research intensive universities.

Table 11 - Funding Sources, Amount and Collaborators since 2014 by Type of Higher Education Institution

	Occupational Therapy Educating Only n=22 *	Occupational Therapy Educating + Research Intensive n=12 *
Funding Source - tick all that apply		
Charity	10 (45.4%)	4 (33.3%)
Local Authority	3 (13.6%)	1 (8.3%)
NHS organisations	6 (27.3%)	2 (16.7%)
OT/AHP professional organisations	11 (50.0%)	1 (8.3%)
National Funding; Government, RCUK, NIHR	10 (45.4%)	3 (25.0%)
Internal university funds	4 (18.2%)	3 (25.0%)
European Union (EU)	2 (9.1%)	0
HEE	1 (4.5%)	1 (8.3%)
Consultancy/Expert Services	4 (18.2%)	0
Funding to Date		
Less than 20,000	3 (13.6%)	6 (50.0%)
20,001-49,999	3 (13.6%)	1 (8.3%)
50,000 - 399,999	10 (45.4%)	1 (8.3%)
400,000+	1 (4.5%)	1 (8.3%)
Missing	5 (22.7%)	3 (25.0%)
Collaborators - tick all that apply		
UK HEIs	13 (59.1%)	5 (41.7%)
Non-UK HEIs	8 (36.4%)	4 (33.3%)
Industry or local authorities	4 (18.2%)	3 (25.0%)
Other universities	1 (4.5%)	1 (8.3%)
NHS	6 (27.3%)	1 (8.3%)
Charities	3 (13.6%)	1 (8.3%)

* number of institutions - not grants or collaborations

4.2.3 Insights from Non-HEI Interviews

As part of our recruitment strategy for the interview and survey elements of the project, we set up a stand at the 2019 RCOT annual conference inviting people to speak to us about their research and sign up to be contacted about the survey and/or interview. This provided us with other ways of contacting institutions where pre-registration occupational therapists were educated. Through this approach we were also provided with a number of contacts at universities without pre-registration programmes but where occupational therapy research was undertaken and at non-university institutions such as NHS trusts where occupational therapy research was being undertaken. In addition to this, one further university without a pre-registration programme was also contacted and an interview was undertaken as we had found a large amount of occupational therapy literature from this institution in the literature review search. Due to the small number of both of these types of participant, the data gathered from these sources cannot be treated as representative but should be seen as a snapshot of what may be going on in these areas. This project did not have the capacity to contact further similar potential participants. It is recommended that such participants are identified for inclusion from the start in any future research.

Where interview participants were not from academia some questions around research practices (e.g. Since 2014, how many doctoral students are carrying out occupational therapy profession specific research at your university?) were omitted as they were irrelevant in their context. However, the breadth and types of research that were being undertaken within the NHS became more apparent in the literature review when practice affiliations were listed for some authors. For example, research areas included experiences of and interventions for: stroke survivors; individuals who were experiencing palliative care; and individuals with dementia. Participants at the session undertaken at the 2019 RCOT annual conference pointed to a desire from themselves and their colleagues to undertake research but emphasised the challenges. This is consistent with research around the world reported in the Research Performance Indicators literature review (see sections 4.4.3.2; 4.4.3.4 and 4.4.3.5 and 4.4.4).

4.2.4 Insights from the Interviews with Employees of Universities That Did Not Deliver Occupational Therapy Education Programmes

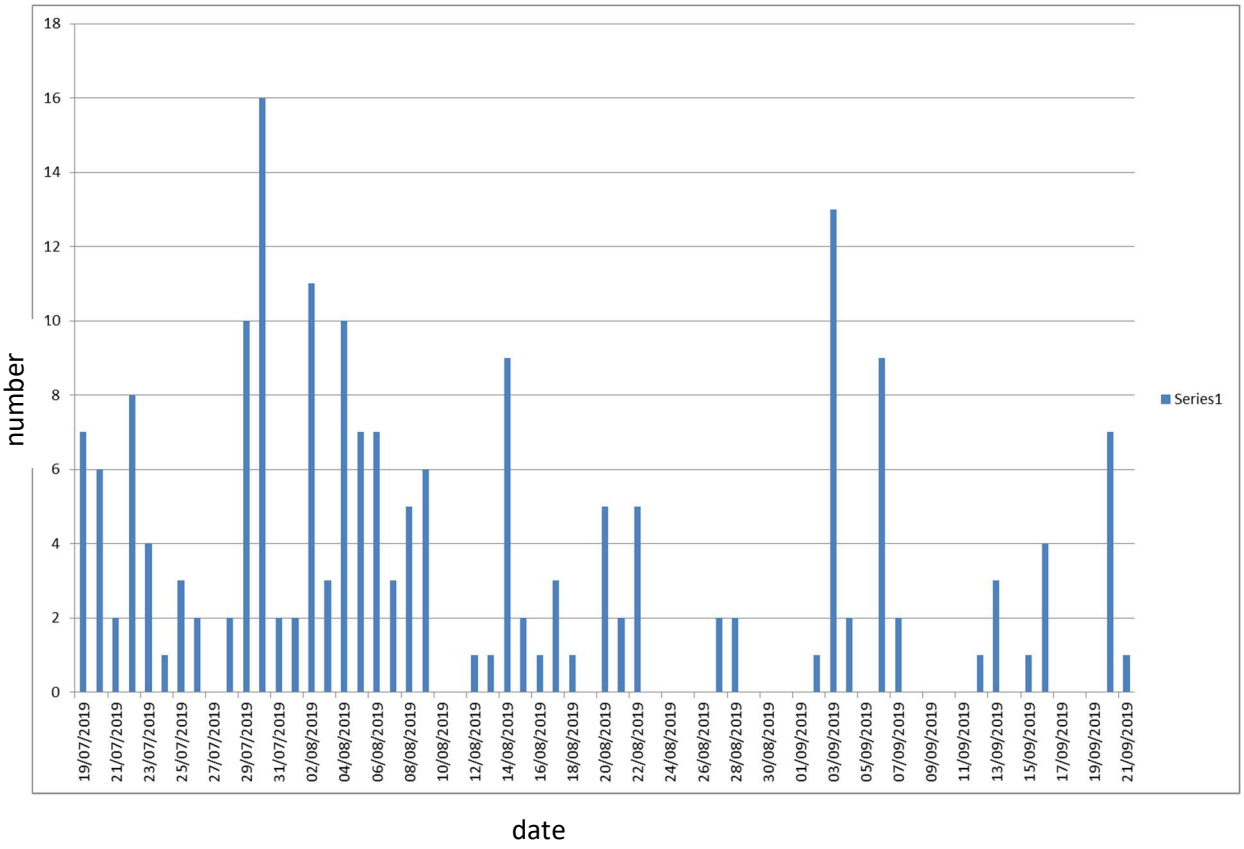
Two universities had staff members undertaking occupational therapy research but did not have a pre-registration programme for occupational therapists. The information gathered from them suggests that when considering the depths of occupational therapy research being undertaken it is important to engage with such universities. Both could demonstrate that occupational therapy research was being undertaken in diverse research groups on a variety of topic areas including housing, dementia care, and stoke rehabilitation. Further research is required to identify whether this variety and diversity is a trend replicated in other universities. Both these institutions were Russell Group universities with high status medical schools, so it may be that having a strong health foundation and research focus at the core of the university means that it is more likely for them to conduct AHP research (and thus including occupational therapy) despite not having an occupational therapy teaching department.

4.3 Findings from Survey

4.3.1 Survey Response Overall

A pilot survey was completed on the 3rd of July 2019. The survey was conducted between the 19th of July 2019 and the 21st of September 2019. 90% of respondents completed the survey in 12 minutes or less.

Figure 3 - Number of Survey Responses by Date



Of the 197 responses to the online survey, 109 were included after checking inclusion criteria and completeness (see Table 13). One hundred and four respondents provided their name, 92 provided their email and 45 provided a link to their institutional profile page.

Table 12 - Number of Responses to the Survey and Application of Exclusion Criteria

Activity	**N change**
Downloaded from survey website	196
Did not accept the consent	-8
Are not active researchers	-34
Not HCPC registered	-8
Stopped the survey at the demographic questions or name or very early in survey	-37
Final Number Analysed	109

4.3.2 Demographics

Survey respondents were predominantly English and female. Nearly one sixth did not report their age. One-third reported their highest qualification as a doctorate and one-fifth an MSc. As there is no data available on the entire population of UK occupational therapy researchers, it is not possible to determine if the respondents to this survey are representative of the occupational therapist population.

Table 13 - Description of the Survey Respondents

Question	N (%)
Q7 Gender	
Male	6 (5.5%)
Female	95 (87.2%)
Other	0
Missing	8 (7.3%)
Q8 Age Group	
26-40 years	26 (23.9%)
41-50 years	39 (35.8%)
50+	26 (23.9%)
Implausible age (eg. 105) or missing	18 (16.5%)
Q9 Where Based	
England	90 (82.6%)
Scotland	5 (4.6%)
Wales	4 (3.7%)
Northern Ireland	0
Channel Islands	1 (0.9%)
Isle of Man	0
Non-UK based	1 (0.9%)
Missing	8 (7.3%)
Q20 In What Year Did You Become Professionally Qualified +	
2010-2019	22 (20.1%)
2000-2009	31 (28.4%)
1990-1999	33 (30.3%)
<1990	20 (18.3%)
Missing	3 (2.8%)
Q21 Highest Academic Qualification	
Doctorate	36 (33.0%)
MOccTh	0
MSc	47 (43.1%)
PGDip	2 (1.8%)
BSc	13 (11.9%)
DipCot	2 (1.8%)
Other (MPhil (1); MRes (3); MResCP (1); PG Cert (1)	6 (5.5%)
Missing	3 (2.8%)

The survey respondents are dominated by those who have some ties to academia. Two-thirds of the respondents worked in an academic setting and two-fifths in clinical settings. Sixteen respondents reported that their "primary working areas" were in both an academic and clinical setting (Table 14). Of the two people who reported that they primarily worked in the third sector, one had an academic appointment and the other a clinical appointment. Two of the five people with government appointments also had other appointments. The most common academic appointments were senior lecturer (20/109), lecturer (16/109), programme lead (13/109) and research associate (14/109).

Table 14 - Primary Working Areas and Academic Appointment of The Survey Respondents – N (%)

Question	N (%)
Q16 Primary Working Sector (tick all that apply)	
Academic	73 (67.0%)
Clinical	47 (43.1%)
Government	5 (4.6%)
Third Sector	2 (1.8%)
Other	5 (4.6%)
Q19 University Appointment	
Programme Lead	13 (11.9%)
Research Co-ordinator	1 (0.9%)
Doctoral Lead	0 (0%)
Professional Lead	3 (2.8%)
Professor	2 (1.8%)
Assistant Professor	0 (0)
Associate Professor	2 (1.8%)
Reader/Principal Lecturer	6 (5.5%)
Senior Lecturer	20 (18.3%)
Lecturer	16 (14.7%)
Assistant Lecturer	1 (0.9%)
Senior Research Fellow	0 (0%)
Research Fellow	6 (5.5%)
Research Associate	14 (12.8%)
None/missing	25 (22.9%)

The respondents were asked if they were a member of one or more of the RCOT Specialist Sections (see Table 16). Most of the survey respondents were RCOT members (105/109) with seven listing more than one Specialist Section, although just under one half did not select a Specialist Section. When asked what their primary working areas were, 57% of respondents selected ‘other’. These open answer responses were classified into eight further working areas (see Table 16) of which one quarter of these 'other' areas involved academia/education.

Table 15 - Research Areas of the Survey Respondents – N (%)

	N
A12 Current member of RCOT	105
Q13 RCOT Specialist Section (select all that apply)	
children, young people & families	10
housing	3
independent practice	1
mental health	14
neurological practice	10
older people	15
oncology & palliative care	7
learning difficulties	2
trauma & musculoskeletal health	6
work	4
Did not indicate an RCOT Specialist Section	46 (42.2%)
1 RCOT Specialist Section	56 (51.4%)
2 RCOT Specialist Sections	6 (5.5%)
4 RCOT Specialist Sections	1 (0.9%)
Q14+ Primary Working Areas (tick all that apply)	
children & youth	12 (11.0%)
elderly	27 (24.8%)
learning disabilities	6 (5.5%)
mental health	26 (23.9%)
Other - classified into above or as below	62 (57%)
academia	27 (24.8%)
NHS	4 (3.7%)
treatment for specific health conditions	25 (22.9%)
neurological	10 (9.2%)
palliative care	4 (3.7%)
primary care/public health/community care	7 (6.4%)
housing/social care	3 (2.8%)
misc.	4 (3.7%)

+ indicates that further categories were created from the "other please specify" response

For academics, the Research Excellence Framework is a mandatory component of research life. Anyone with a research remit should be aware of how it operates and the expectations that arise from it (e.g. the difference between research and scholarship). The majority of respondents to this survey are familiar with the Research Excellence Framework but only 10% submitted in 2014. Four times that number (40.4%) plan to submit to the Research Excellence Framework in 2021 (see Table 16).

Table 16 - Knowledge of, and Submission to, The Research Excellence Framework (REF) - N(%)

	N (%)
Q23 Do You Have Knowledge of The REF 2014	
Yes	85 (78.0%)
No	21 (19.3%)
Missing	3 (2.8%)
Q24 Did You Submit to REF 2014? - not asked if no knowledge	
Yes	11 (10.1%)
No	73 (67.0%)
Missing	25 (22.8%)
Q25 Will You Be Submitting to REF 2021	
Yes	44 (40.4%)
No	61 (56.0%)
Missing	4 (3.7%)

When examined by type of academic appointment, almost all appointment levels knew about the Research Excellence Framework (REF). While relatively few had been submitted in REF 2014, this may be because they were not in a role that included research, or because of the way REF 2014 was structured with only high-performing researchers submitted. In REF 2021, the rules of inclusion have changed, and researchers of any grade must be included as long as they have a "substantive responsibility for research". The survey found that two-thirds of those with a doctorate and one-third of respondents with a master's degree were planning to submit in 2021 (Table 17). There were no major differences by the decade that the occupational therapist became qualified in terms of whether they submitted or intend to submit to the Research Excellence Framework.

Table 17 - Research Excellence Framework Knowledge and Inclusion by Type of Academic Appointment or Highest Degree (number divided by the number of replies to the question)

	Know About REF *	Submitted In 2014	Submitting In 2021
Type of Academic Appointment			
Programme Lead	N=13	3/12	12/12
Research Co-ordinator	N=1	0/1	1/1
Professional Lead	N=3	1/3	1/3
Professor	N=2	2/2	2/2
Associate Professor	N=2	1/2	1/2
Reader/Principal Lecturer	N=6	3/6	6/6
Senior Lecturer	N=20	3/20	9/20
Lecturer	N=16	0/13	10/15
Assistant Lecturer	N=1	0/1	1/1
Research Fellow	N=6	0/6	1/6
Research Associate	N=14	0/12	2/14
Highest Academic Degree- academics only			
Doctorate	33/33	9/32	23/32
MSc	28/31	0/28	10/31
PGDip/DipCOT/Other	2/3	0/2	1/3
BSc	4/4	0/4	3 / 4

* only answered if they knew about the REF

One third of respondents had received NIHR or charity funding (see Table 18). Six reported self-funding research although we could often ascertain this was research undertaken as part of master's degree education. Service evaluation and university research priming schemes were also common. Just under one-half of respondents reported no research income and over half reported participating in unfunded research. Of the people who reported participating in unfunded research, the majority also had funded research suggesting that a mixed portfolio of funding is typical in occupational therapy research.

Table 18 - Sources and Amounts of Research Funding - Including Unfunded Research - N(% of all respondents)

	N(%)
Q26+ Primary Sources of Research Funding (tick all that apply +)	
Charity research funding	33 (30.3%)
RCUK funding	7 (6.4%)
Evaluation for charitable groups	3 (2.8%)
NIHR	35 (32.1%)
Service evaluation	16 (14.7%)
Responses from "other" - some coded into above categories	18 (16.5%)
Self-funded	6 (5.5%)
Employer funded	4 (3.7%)
NHS/National Government	14 (12.8%)
University staff research schemes	7 (6.4%)
No funding source reported	6 (5.5%)
Q28 What is The Largest Amount of Funding For Any Study You Have Been Involved In?	
£3,000 or less	14 (12.8%)
£3,001 to 35,000	14 (12.8%)
£35,001 to 100,000	15 (13.8%)
£ more than 100,000	15 (13.8%)
No value reported	51 (46.8%)
Q29 Have You Participated in Any Unfunded Research?	
Yes	69 (63.3%)
No	32 (29.4%)
Missing	8 (7.3%)
Q30+ What Is the Nature of The Unfunded Research? (some recoding +)	
Progress evaluation - audit/service evaluation/secondary data analysis	19 (17.4%)
Development project/exploratory	31 (28.4%)
Research education - MRes/doctoral - topic not otherwise specified	18 (16.5%)
Educational	1 (0.9%)
Primary research/systematic review	2(1.8%)
Not applicable (no to Q29) or missing	40 (36.7%)

Table 19 - Primary Working Area (Q14) By Income (Q 28) - N

	≤ £3000 (N=19)	£3001 - 35,000 (N=18)	£35,001 - 100,000 (N=18)	>100,000 (N=23)	nothing reported (N=63)
Primary Working Area:					
Children & Youth (N=12)	3	0	5	3	1
Older People (N=27)	1	4	4	6	12
Learning Disabilities (N=6)	1	1	0	1	3
Mental Health (N=26)	4	1	3	4	14
Academia (N=27)	6	7	2	1	11
NHS (N=4)	1	0	2	0	1
Condition Specific OT Treatment (N=25)	2	5	2	4	12
Primary Care/Public Health (N=7)	1	0	0	2	4
Housing/Social Care (N=3)	0	0	0	0	3
Misc. (N=4)	0	0	0	2	2
Sector They Work In:					
Academia (N=73)	11	9	12	12	29
Clinical (N=47)	4	5	6	7	25
Government (N=5)	1	0	0	0	4
Third Sector (N=2)	1	0	0	0	1
University Appointment:					
Programme Lead (N=13)	0	3	2	1	7
Research Co-ordinator (N=1)	0	0	0	1	0
Professional Lead (N=3)	0	1	1	1	0
Professor (N=2)	0	0	0	2	0
Associate Professor (N=2)	0	0	1	0	1
Reader/Principal Lecturer (N=6)	0	2	3	1	0
Senior Lecturer (N=20)	2	5	1	4	8
Lecturer (N=16)	6	1	1	1	7
Research Fellow (N=6)	0	0	3	1	2
Research Associate (N=14)	3	1	2	4	4
Highest Academic Appointment					
Doctorate (N=36)	1	4	7	10	14
MSc (N=47)	10	8	6	5	18
PGDip (N=2)/DipCOT (2)/Other (6)	2	1	0	0	7
BSc (N=13)	1	1	2	0	9

University appointments for which no income was reported - Doctoral Lead, Assistant Professor, Assistant Lecturer, Senior Research Fellow

Table 19 maps the total research funding categories onto the primary research areas the sector respondents work in, university appointment and highest degree attained. Condition specific funders are dominated by neurological (N=10) and palliative care (N=4) research areas. Generally, more than half of all those reporting a primary working area also reported income. Nearly two-thirds of those who work in academia and half of those in clinical sectors reported income, and just over 60% of those with a master's degree or doctorate reported income. There may be a trend towards increasing income in those who have both academic and clinical affiliations, but the numbers are too small to be confident of this.

4.3.3 Examples of How Respondents Link Current Research into Teaching

There were 75 responses to an open text question about how the respondent linked current research into teaching. The responses listed a range of activities through which research is connected to teaching in HEIs and education delivered to clinicians and students on placement. These statements were analysed qualitatively and organised into themes. Of these 75 responses, 27 (36%) full or part statements fitted into more than one category, although the level of detail varied, and some statements or part statements could not be attributed to a theme through lack of detail. A crude distinction between education and training may be drawn by the relationship to service, as four of the participants were not based at HEIs, while others had roles which included in-service training to clinicians.

Research topics incorporated into education are included in the list below, but some responses did not mention specific areas of interest:

- research methods
- homelessness, asylum seekers, vulnerable groups
- role emerging practice
- plus size needs
- anxiety
- 'Occupation Matters' (campaign for maximising life quality through occupation promoted by RCOT https://www.rcot.co.uk/occupation-matters)
- air travel
- people with dementia, (healthy) ageing, elderly rehabilitation, cognitive rehabilitation
- assistive living technologies
- complex occupational needs
- fatigue management

Four responses (5.3%) referred to involving students in studies or as potential researchers, two (2.7%) of which identified their engagement as research assistants and another as participants. A further response referred to the involvement of AHP clinicians in a clinical trial. Additionally, two responses indicated the use of social media; one of which concerned engaging students in discussion on research and another mentioned encouraging the use of evidence-based practice.

Overall, these responses show a similar breadth of occupational therapy practice to what is seen in the literature review.

4.4 Findings from the Literature Review to Identify Research Performance Indicators

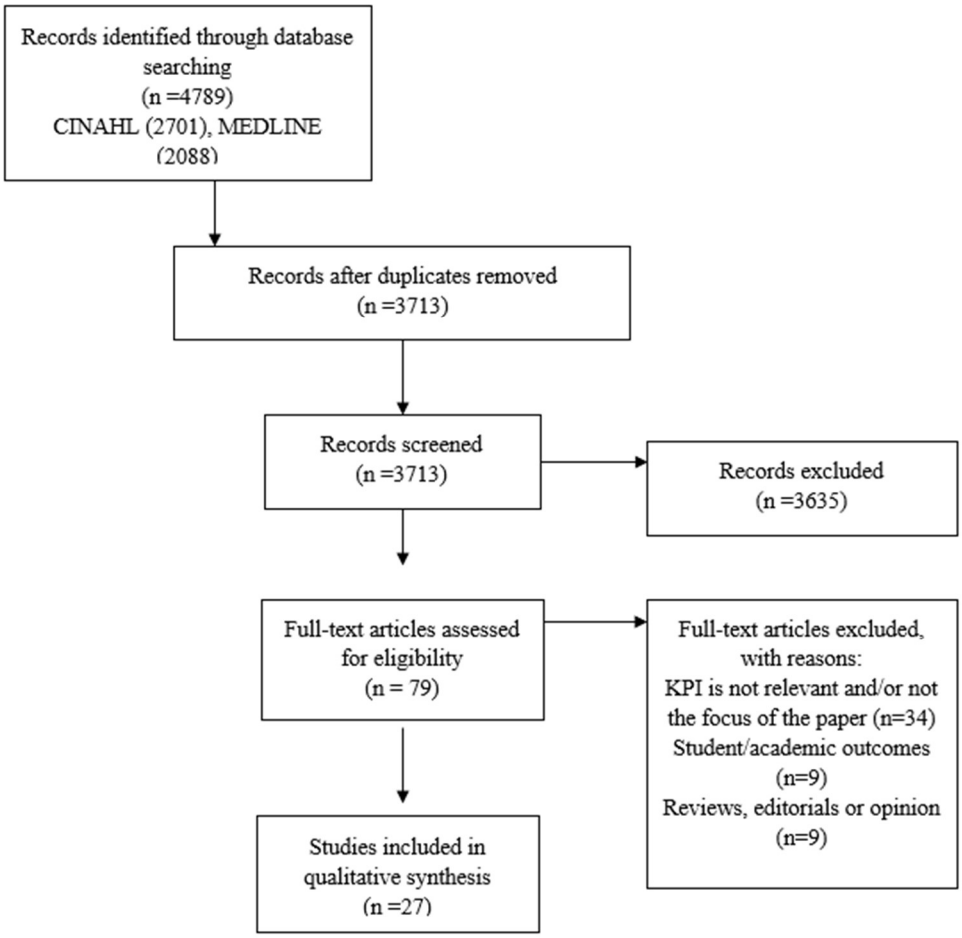
4.4.1 Screening and Selection

Four thousand, seven hundred and eighty-nine results were returned from CINAHL and MEDLINE, which reduced to 3713 after removing duplicates. Further discussion amongst the team resulted in the decision to exclude any records published before 2014. This was to ensure the review aligned with the objectives to search contemporary literature for relevant research performance indicators (RPIs). After discussion between reviewers to reach consensus, 79 papers were screened by retrieving the full text.

During full-text screening, many papers (n=34) either discussed RPIs that were not relevant or transferable, such as factors affecting publication outputs in physical therapists only, or RPIs were not the focus of the paper, such that there were insufficient data to extract and make meaningful conclusions. A number of papers (n=9) were found to be focused solely on student or academic outcomes, such as developing clinical skills in students, analysis of learning styles, or implementation of alternate curricula in undergraduate or pre-registration master's programmes of study. Nine other papers were excluded that, upon full-text screening, were found to be conference and/or poster abstracts, review papers, editorials, or opinion pieces.

Twenty-seven papers were included in the final synthesis. Fig. 12 outlines the screening and selection process.

Figure 4 - PRISMA flow diagram on the research performance indicators literature search



taken from (11)

4.4.2 Findings from the RPI Literature Review

Of the 27 studies included in the synthesis, only two were conducted in an academic setting; that is, the research question either directly concerned academic faculty, or the participants consisted wholly of faculty. The other 25 studies were conducted in clinical settings.

Six of the studies were conducted in Australia, four in Sweden, three in Canada, the USA and in the UK, two in South Africa, and one each in Ireland and Saudi Arabia. Four of the studies examined the bibliometrics of published occupational therapy literature and were therefore classified as 'worldwide'.

Nine studies used a survey as a data collection method, four used a questionnaire, three studies used focus groups, three studies used semi-structured interviews, and one used a focus group and interviews. Seven studies were a secondary data analysis of publicly available bibliometric data. Table 21 indicates the characteristics of the included studies.

After extraction, RPIs were qualitatively analysed and categorised into eight main themes:

1. academic level
2. continuing professional development (CPD)
3. professional experience
4. research involvement

5. funding applications
6. organisational research infrastructure
7. publications and outputs
8. publication metrics

Table 20 - Characteristics of the RPI Publications

Author	Year	Method of Data Collection	Country	Setting
Alshehri 2019 (12)	2019	Survey	Saudi Arabia	Clinical
Bennett 2016 (13)	2016	Interviews	Australia	Clinical
Brangan 2015 (14)	2015	Questionnaire	Ireland	Clinical
Broome 2017 (15)	2017	Bibliometric analysis	Australia	Academic
Brown 2019a (16)	2019	Bibliometric analysis	Worldwide	n/a
Brown 2019b (17)	2019	Bibliometric analysis	Worldwide	n/a
Brown 2018a (18)	2018	Bibliometric analysis	Australia	n/a
Brown 2017a (19)	2017	Bibliometric analysis	Worldwide	n/a
Brown 2018b (20)	2018	Bibliometric analysis	Worldwide	n/a
Brown 2017b (21)	2017	Bibliometric analysis	Worldwide	n/a
Buchanan 2014 (22)	2014	Questionnaire, audit	South Africa	Clinical
Cardin 2018 (23)	2018	Survey	USA	Clinical
Di Bona 2017 (24)	2017	Focus groups	UK	Clinical
Eriksson 2017 (25)	2017	Focus group and interview	Sweden	Clinical
Fristedt 2016 (26)	2016	Semi structured interviews	Sweden	Clinical
Gupta 2014 (5)	2014	Survey	USA	Academic
Hitch 2019 (27)	2019	Survey	Australia	Clinical
Lindstrom 2018 (28)	2018	Survey	Sweden	Clinical
MacDermid 2015 (29)	2015	Secondary data analysis	Canada	Clinical
Morris 2017 (30)	2017	Survey	UK	Clinical
Myers 2019 (31)	2019	Questionnaire	USA	Clinical
Nelson 2015 (32)	2015	Semi structured interviews	Australia	Clinical
Pitout 2014 (33)	2014	Focus groups	South Africa	Clinical
Reyes 2018 (34)	2018	Survey	Canada	Clinical
Thomas 2014 (35)	2014	Survey	Canada	Clinical
Williams 2015 (36)	2015	Online Survey	Australia	Clinical
Wressle 2015 (37)	2015	Postal questionnaire	Sweden	Clinical

Table 21 - Mapping the Research Performance Indicator Themes onto the publications

Reference	Setting*	Academic Level	CPD	Professional Experience	Research Involvement	Funding Applications	Organisational Research Infrastructure	Publications and Outputs	Publication Metrics	EBP
Alshehri 2019 (12)	C									X
Bennett 2016 (13)	C				X		X			
Brangan 2015 (14)	C		X							
Broome 2017 (15)	A	X						X	X	
Brown 2019a (16)	na								X	
Brown 2019b (17)	na							X	X	
Brown 2018a (18)	na							X	X	
Brown 2017a (19)	na								X	
Brown 2018b (20)	na							X	X	
Brown 2017b (21)	na							X	X	
Buchanan 2014 (22)	C									X
Cardin 2018 (23)	C									X
Di Bona 2017 (24)	C						X			
Eriksson 2017 (25)	C				X		X			
Fristedt 2016 (26)	C									X
Gupta 2014 (5)	A	X		X	X	X		X		
Hitch 2019 (27)	C		X		X		X			
Lindstrom 2018 (28)	C	X		X						X
MacDermid 2015 (29)	C	X				X		X	X	
Morris 2017 (30)	C	X	X	X	X	X	X	X		
Myers 2019 (31)	C									
Nelson 2015 (32)	C	X	X	X			X			
Pitout 2014 (33)	C	X	X		X	X	X	X		X
Reyes 2018 (34)	C	X	X	X						
Thomas 2014 (35)	C	X	X	X	X		X			
Williams 2015 (36)	C			X		X	X	X		
Wressle 2015 (37)	C	X		X						

* C = clinical; A = academic; na = not applicable

4.4.3 The themes derived from the RPI literature review

Table 22 presents the eight main themes mapped onto the studies.

A final ninth theme, evidence-based practice (EBP), was deduced from RPIs that concerned the measurement and facilitation of EBP. This theme is not included in the main results because it does not directly relate to the research question. However, data pertaining to this theme was grouped and analysed for the discussion in Section 6 as it is a key focus of the new RCOT (2019) research and development strategy 2019-24.

4.4.3.1 Theme: Academic Level

Academic level refers to RPIs relating to degree level or academic post (5, 14, 27-29, 31-34, 36). RPIs included in this theme were highest academic degree, whether the occupational therapist holds a

Doctorate, whether they were engaged in teaching, or the type and number of post-graduate qualifications.

Several studies indicated the number of practitioners (or, in academic settings, faculty) that held a master's or doctoral degree. Two authors reported that, in clinical settings, there appeared to be a smaller proportion of occupational therapists that were doctorate holders (28, 34, 37) than those reported in an academic setting (5).

Broome and Gray report that the mean number of publications for academics with a doctorate was 26.94 compared to 2.43 for those without (15). Furthermore, holding a doctorate was predictive of both H-index (a citation measurement tool) and academic level in the same study. Additionally, Wressle and Samuelsson report that those clinicians with a higher degree are more likely to use research in their daily practice in comparison to those with a pre-BSc or BSc (37). However, it is not clear whether doctorate/higher degree holders in a clinical setting are more likely to be involved in research than clinicians without. In a survey of UK occupational therapists working either in the NHS or private or social sectors, Morris and Smyth found no link between the level of qualification and involvement in research which is consistent with our survey findings (30).

4.4.3.2 Theme: Continuing Professional Development

CPD refers to RPIs that relate to qualifications or training to further one's career or skillset. RPIs included in this theme were: use of appraisal or performance review tools, personal development plan (PDP), undertaking leadership roles, professional membership, occupational-grade level, post-professional qualifications, development of research abilities, and leadership training.

Though not directly a research-related RPI, the use of CPD to further career progression and enhance skillsets could have a positive impact on research capacity (30). Morris and Smyth conducted a survey of occupational therapists in the UK and developed key RPIs for the development of research capacity and partnership including leadership, training, and skills development. In addition, it was suggested that organisations promote and facilitate such training and development. Indeed, Thomas and Law's survey of Canadian occupational therapists (35) asked respondents to indicate what would promote their involvement in research in future; 41% and 43% of respondents indicated 'having the skills to do research' and 'continuing education on how to do research', respectively.

In a survey concerning career progression in Australia (32), occupational therapists respondents cited the importance of performance appraisal, performance development plans, leadership training, and post-graduate study in moving to a higher role that surpassed solely clinical duties. Professional bodies may play a role in providing such CPD that could eventually lead to increased research output In a study identifying factors that could increase South African occupational therapists' involvement in research, participants were asked in focus groups and interviews how the Occupational Therapy Association of South Africa (OTASA) could increase its contribution to research (33). Participants suggested research methodology and publication workshops as CPD events, as well as instituting a network of writing and publication mentors, and discussions and workshops lead by researchers.

Several studies outline barriers to using CPD activities as RPIs; for example, some professional development activities may rely on the employer either paying for the activities or allowing activities to be carried out during work hours. Over half of Canadian occupational therapists' responses (54%) indicated that their employer did not provide protected time for CPD, although 74% said that their employers paid for it (35). In

regard to professional bodies, membership may be an issue for voluntary organisations. Reyes and Brown report that respondents were more likely to be a member of mandatory organisations than those that are voluntary, unless concessions such as free student memberships are made (34).

4.4.3.3 Theme: Professional Experience

Professional experience relates to RPIs that concern type or length of experience, such as years of experience, time since graduation, years qualified, and job role. The use of length or type of experience as an RPI is not necessarily supported by the selected literature.

For example, Lindstrom and Bernhardsson conducted a survey of Swedish occupational therapists and reported that older therapists (50+ years) were more likely to know how to integrate patient preference with guidelines, but that length of therapist experience was not associated with other EBP variables (28). However, Wressle and Samuelsson report that longer years of practice was associated with less use of research-based interventions and guidelines (37). Additionally, Morris and Smyth report that 55% of their UK based sample who had been qualified for more than fifteen years had been involved in research within the last five years, compared with 32% of those qualified for fewer than fifteen years (30).

Conversely, Williams et al. found no association between recency of practice and organisational or team research skills, and that higher-grade positions were the most constant variable significantly associated with organisation and individual research skills (36). In a similar vein, Wressle and Samuelsson indicate that in comparison to 'other occupational therapists', managers were more likely to use research-based knowledge, change practice due to new research, and have increased awareness of effective interventions by embracing research (37).

Research into the use of professional experience as a research RPI in an academic setting is limited. Although Gupta and Bilics surveyed occupational therapy faculty in the USA about their research involvement, this was limited to involvement in research in the area of education (5).

4.4.3.4 Theme: Research Involvement

Research involvement refers to RPIs that pertain to collaborating on or conducting research. This includes undertaking and developing specific research projects in collaboration with clinicians, supervision of research students over the past five years, involvement in research over the past five years, collaboration with researchers to implement interventions, and the establishment and maintenance of strategic collaborations and networks.

The research involvement of clinical staff in the selected studies appears to be inconsistent. In a UK survey of occupational therapists with an interest in mental health research (30), 80% (n=116) of whom worked within the NHS, 48% (n=60) of participants stated that they had been involved in primary or secondary research about mental health in the past five years. Even limited to those working in the NHS, 45% of respondents were currently or had been involved in research in the past five years. This is in contrast to a survey of Canadian occupational therapists working with either children or older adults (35), where only 15% (n=55) of respondents said that they were currently involved in research. However, 43% (n=158) indicated that they had been involved in research in the past.

In the same study, supervision of research students was also infrequent, with 42% (n=154) stating they had supervised no students over the past five years, 34% (n=125) stating they had supervised one student over the past five years, and only 24% (n=88) indicating that they had supervised more than one student over the past five years (35).

Several studies discuss, or evaluate the impact of, initiatives to increase or improve research culture, capacity and productivity (13, 25, 27). In interviews with Australian occupational therapists working in a hospital setting (13), participants discussed their experiences of being involved in research where they helped to identify, recruit and assess/treat participants for studies. They reported excitement and enthusiasm for the projects they were working on, in particular contributing to other people's research in order to bring about change. Similarly, occupational therapists in Sweden collaborated with researchers to deliver a new complex intervention and discussed their experiences through interviews and focus groups (25). They attended an initial workshop lead by researchers before working with the researchers to deliver the intervention. Despite feeling initially sceptical, the occupational therapists eventually felt pride as well as increased confidence and professionalism. They were glad to have a working model that was evidence-based and could bring about the opportunity for change. Indeed, in Thomas and Law's survey, when asked to select what could increase their future research involvement, 67.4% said 'being part of a clinically relevant study', 61.1% said 'having a small, manageable role in the project', and 55.7% said 'doing research with other clinicians' (35).

This indicates that occupational therapists may have a favourable opinion toward the use of involvement in research as RPIs. Indeed, Hitch et al. used research involvement as RPIs in a public occupational therapy service for people with serious mental illness in Australia (27). The RPIs included the undertaking and developing of specific research projects in collaboration with clinicians, and supervision of research students. The result was 28 active research projects (with participation from 46% of the total workforce), three completions from research students and multiple clinician-lead published articles and conference presentations.

However, it might be prudent to select RPIs relating to the research infrastructure of an organisation so that involvement in research by clinicians can be made possible in the first instance.

4.4.3.5 Theme: Organisational Research Infrastructure

Organisational research infrastructure refers to RPIs that measure an organisation's readiness to promote and conduct research education and delivery. RPIs in this theme found across the literature include workshops led by researchers, the presence of a research lead, mentorship of clinicians, supporting the translation of research and knowledge into practice, being affiliated with a health sciences university, enabling collaboration, and allowing staff access to, and time to conduct, research.

Across the selected studies, the reason for limited research involvement among clinical staff seemed to be lack of time. In Thomas and Law's survey, only 2.7% of the sample were actual researchers, with the rest being mainly clinicians (76.1%), consultants (26.1%) and managers (6.8%) (35). When given the option to select features that might increase their research involvement, 82% of 368 respondents selected 'Having time to do research'. This is supported by the respondents in Morris and Smyth's survey, where despite 45% of respondents currently being involved in research, only 20% of the sample indicated that they had 'some' time for research (30). Di Bona et al. aimed to identify the enablers and challenges to research involvement among UK occupational therapists tasked with delivering an intervention as part of a research

study (24). Occupational therapists commented that overwhelming paperwork was a barrier, while having protected, funded time to do research was an enabler. Even academic roles do not necessary mean being involved in research per se; of the twelve academics in Morris and Smyth's study, only two had research-focused roles with at least 75% of their time spent on research (30). The others had education focused roles.

The introduction of focused research leads may help to develop research capacity. Hitch et al. evaluated the impact of a Lead Research Occupational Therapist position in public mental health service (27). Several research RPIs were selected and measured over three and a half years. The average number of research activities undertaken by the workforce before the introduction of the role was 0.74, increasing to 1.60 afterwards. In addition, a greater proportion of participants described themselves as research generators afterward (26% increased to 34%). As previously discussed, 28 research projects were established as a result. Similarly, Williams et al. evaluated the impact of the presence of a research lead on research capacity and culture in Australian occupational therapists working in public health services (36). In comparison to those services without a research lead, respondents with a research lead reported higher involvement in data collection, writing reports and publications, and applications for research funding. Those respondents in services without a research lead reported that 42% of the workforce were not involved in current research activities, compared to 28% of those with a research lead.

Organisations could also facilitate collaboration networks and affiliate themselves with relevant universities. In Thomas and Law's survey of Canadian occupational therapists, where only 15% of respondents indicated being currently involved in research, 55.9% reported that their practice setting was not affiliated with a health sciences university (35). Pitout interviewed occupational therapists in South Africa about their views on increasing research involvement and participants suggested that collaboration between clinicians and academics assisted to incorporate research into practice (33). Further, academics can in turn assist clinicians with access to ethical committees, literature resources and research education. In Hitch and colleagues' evaluation of the successful implementation of an occupational therapy research lead, one of the main research RPIs was to establish and maintain strategic collaborations and networks at multiple levels, including universities, health services and industry partners (27).

Finally, organisations must ensure they are providing staff with access to research databases; the lack of a centralised database with information on completed studies, studies in progress and future studies needed was reported to be a hindrance to research capacity (33).

4.4.3.6 Theme: Funding Applications

Funding applications encompasses RPIs measuring the success of research funding applications, including sources of funding for research, total of number applications, number of successful applications, amount received, funding received as a principle investigator (PI), and funding received as a co-author.

The number of successful applications and amount received may be a good indicator of research capacity and productivity. The selected studies indicate that success rates were linked to time qualified and academic level (29, 30), with doctorates receiving on average a higher amount of funding (30). Additionally, in an analysis of predictors of the amount of funding received by Canadian occupational therapists, H-index and citation count were significant predictors (29). In the same study, the amount of funding received was also linked with academic level, where professors received the most, followed by associate professors and then assistant professors.

While funding applications can be used as RPIs to measure research success, some participants cite lack of funding as a reason for limited research involvement (33). However, Morris and Smyth report that the highest success rates for funding applications were for lower sums of money, with the source of the funding being occupational therapy focused organisations (30).

4.4.3.7 Theme: Publication Outputs

Publication outputs refer to RPIs such as the number and type of publications. This includes number of peer-reviewed articles, conference posters and conference presentations.

Ten of the selected studies referred to publication outputs as a RPI and/or explored the links between publication outputs and other characteristics. Several of the papers report the use of not only number and type of publication outputs, but also additional information taken into account such as whether the publication was from an international collaboration (20), national collaboration (19) and the institutional performance of the university, including the number of first, corresponding and co-authored papers (18). The use of number and type of publication outputs as an RPI alone, while useful to indicate research activity, may not be sufficient without the consideration of other RPIs such as funding, and without taking into consideration the quality of the publications. These RPIs may be paired with publication metrics, as described below.

4.4.3.8 Theme: Publication Metrics

Eight studies reported publication metrics. Publication metrics, or 'bibliometrics', refers to the 'scores' given to journals, authors or individual articles that purport to measure a publication's proliferation or impact. These include, but are not limited to, journal impact factor, 2- and 5-year impact factor, total citations, citations per publication, Scopus cite score, SNIP (source normalised impact per paper), H-index, Y-index, and G-index.

The use of bibliometrics relating to journal quality may provide additional context to RPIs relating to publications alone, such as the impact factor or the journal cite score per article (16). Additionally, metrics such as the H-index and the Y-index indicate publication intensity and characteristics of contributing authors, institutions and countries (19). These scores in conjunction with citations and journal impact factors may facilitate the identification of research strengths and weakness of occupational therapy, the recognition of top-performing journals, and the identification of high-performing scholars (17). However, such scores or 'indexes' are calculated by several different programs, including Scopus, Publish or Perish, Research Gate, Web of Science, Google Scholar and more (17). Although several of these scores and indices may correlate, Brown and Gutman suggest that the range of available measures should be applied together to create comprehensive profiles of journal and article rankings rather than taking into consideration one score alone. These RPIs may be more useful when combined with other RPIs described above. If used at all, journal metrics should be used with caution, their function and limitations need to be well understood by those using the information, and the information should not be used in isolation from other sources of knowledge. The San Francisco Declaration on Research Assessment (DORA) adopts a critical stance to journal metrics and recommends that signatories of the declaration; for example, a HEI should

> *"…not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions."* (https://sfdora.org/read/)

Further, journal metrics have been criticised (38). A 2016 *Nature* news item was particularly scathing of Journal Impact Factors (39), although most measures have critics. *Nature*, which does well on most measures, often presents well thought through arguments about the limitations, including: highly cited papers contain popular but not particularly innovative ideas; may be high quality systematic reviews; may be the initial descriptions of large studies that all subsequent project publications refer to; a high score may represent an innovative breakthrough field of research or a person who repetitively publishes papers in a narrow but fashionable field. *PLOS One*, regarded as a high impact journal, published a study in 2018 that concluded

> *"… a growing gap exists between an academic sector with little capacity for collective action and increasing demand for routine performance assessment by research organizations and funding agencies. This gap has been filled by database providers. By selecting and distributing research metrics, these commercial providers have gained a powerful role in defining de-facto standards of research excellence without being challenged by expert authority."*

4.4.4 Quality Appraisal of the RPI Literature

As discussed previously, in line with a mapping review method, no formal quality appraisal was undertaken. Instead, the CERQual components were adapted and used as prompts to assess the quality of the whole body of evidence. The four components (methodological limitations, coherence, adequacy of data, relevance) were considered for each study, and the cumulative effects of the concerns in each area were used to reach an overall judgement of confidence (40).

As per table 23, the confidence level for the synthesised studies was judged to be 'moderate'. This is because there were 'moderate' concerns in two of the components (coherence and relevance). For the evidence to be coherent, the fit between the primary data and the review findings must be clear and cogent (40). There were 'moderate' concerns regarding coherence because the primary data for a proportion of papers focused on aspects that were not necessarily in line with the objectives or key findings of this report; that is, they focused more on use of EBP in practice rather than discussing RPIs. Similarly, for the evidence to be relevant, the data from the primary studies must be applicable to the context of the review question. In this present review, 11 studies were found to have a different context, such as including other AHPs in the sample, or the focus of the study relating mainly to knowledge of and use of EBP.

Thus, this downgrades the confidence level from 'high' to 'moderate'. Note that the confidence level refers to how likely it is that the findings presented in this report accurately reflect the phenomena of interest in the review findings, not the quality of the research.

Table 22 - The Evidence Profile for all 27 Included Studies

Evidence Profile	Methodological Limitations	Coherence	Adequacy	Relevance	Confidence Level
Overall quality of the 27 studies	No or minor concerns about methodology	Moderate concern regarding coherence - 10 studies with minor concerns due to study findings relating more to EBP than RPIs	No or minor concerns regarding adequacy	Moderate concern: 8 studies with minor concern due to limited relevance of RPIs, 3 studies with minor concern due to a sample that includes other AHPs, 4 studies with moderate concerns due to focusing mainly on knowledge and use of EBP rather than producing or participating in research	Moderate (two areas with moderate concern)

4.4.5 Conclusions from Literature Review of Research Performance Indicators

During the screening process, the reviewers noted that there appeared to be a lack of studies originating from academic institutions or faculty only. The bulk of the papers are from a clinical setting. Those papers published by occupational therapists in academia tended to focus on interventions, or qualitative studies, involving primarily student-related outcomes. These mostly included fieldwork or placement outcomes, or outcomes related to the students' use of EBP and research as a resource. These studies were not perceived by the reviewers to meet the inclusion criteria and did not contribute to the listed objectives. This constitutes an inherent issue with the literature itself and indicates a need for more research to be conducted where the outcomes concern the research capacity and output of academic staff and faculty.

What was almost entirely missing from any of these RPIs was a measure of impact. Examples relevant for the practice of occupational therapy, and wider healthcare, practice are how research informs practice guidelines and wider healthcare policy. A particularly well-designed piece of research and/or high-quality review can directly inform practice guidelines. The latter is what is quoted in subsequent research rather than the seminal piece of work which formed the basis of these guidelines. It is also not unusual for well executed collaborative work with patients to form the basis of effective lobbying with policy makers. It was partly as a result of this that impact was added in the last Research Excellence Framework as part of the assessment process. A recent review by the Rand Corporation (41) of the Impact submissions identified 5 non-bibliometric measures: engagement; mentions in non-academic documents; employment; financial figures; emissions. Many of these factors are relevant for the NHS and clinical practice generally and are not represented in publication metrics.

5 Evidence Synthesis

This section synthesises the findings into people (occupational therapy researchers), places (research institutions), and (research) papers. This is necessary because no single method identified all the people, or all the places or all the papers; multiple avenues of investigation were needed.

5.1 People (Occupational Therapy Researchers)

No single method identified all occupational therapy researchers. This is partly due to the extreme breadth of occupational therapy practice but also due to: 1) the well documented phenomena of declining participation in surveys by all segments of the population; and 2) the inconsistent manner in which journals do, or do not, list the health profession accreditation of the authors. University websites do not always indicate the people who could be contacted about occupational therapy research. Most pre-registration occupational therapy programmes are located in post-92 universities (Section 4.2) which have an emphasis on teaching and their websites reflect this.

Considering the occupational therapists who completed the survey, 104 out of 109 provided their name, 92 provided their email and 45 provided a web link to their institutional profile page (Section 4.3). Of these 45 web-links, 28 provided new papers ascribed to the authors that were not previously found in the original literature search. A total of 329 occupational therapy researchers were identified from the combined literature review and survey (Section 4.1.1). We could not find 44 of these people on the HCPC register. We recognised some as being in management posts, some as fulltime researchers without teaching responsibilities, and a few others as post graduate pre-registration students working as research associates who had been included as authors. The inclusion of all research team members, including those in junior posts, as authors is consistent with the survey responses and institutional interviews which found research occurring across all levels of academic role and an encouraging number of people holding, or working towards a doctorate. All of the institutions interviewed had at least one staff member with, or working towards, a doctorate.

Forty percent of survey respondents also reported that they would be submitted in the Research Excellence Framework in 2021 (Table 17). Significantly, while two-thirds of those with a doctorate were submitting, so were three out of four with a BSc as their highest degree (Table 18). Although 54% of authors identified had only one research publication, there were 104 authors with two or more papers making them eligible for the Research Excellence Framework (Section 4.1.1).

Two thirds of survey respondents at all academic levels reported unfunded research such as service evaluation, development work or research in occupational therapy education. This is valuable research experience and, in the absence of strong institutional support for research, an important factor for gaining experience and building a CV.

Small numbers in the survey make it difficult to draw conclusions about who gets funding. More than half of those with an academic and/or clinical appointment reported research funding, although one third each of doctorate and MSc holders reported no research funding (Table 19). Given the recent drive for more post graduate degrees, it could be assumed that the one third of respondents without a post graduate degree and without funding may be in administrative roles, or they may be post graduate students yet to be awarded their degrees. Alternatively, it may be an indication that obtaining a doctoral degree does not automatically start a research career. Indeed, the course accreditation process for professional degrees promote the possession of doctoral degrees but the expectations around producing research are less specific and includes a variety of professional engagement.

The research design was informed by information gathered during the introductory session led by Nick Pollard, and supported by Jo Watson, RCOT's Assistant Director – Education and Research, at the RCOT Conference in June 2019. When the audience were asked where we might find occupational therapy research being undertaken, contributors from the audience suggested that beyond the obvious university institutions we should reach out to NHS institutions, private practices (such as those involved in rehabilitation) and charities. In terms of connecting with occupational therapists involved in research, it was suggested that we pursued the use of social media, including twitter due to the large occupational therapy community involved in this media, as well as snowballing the research through relevant research groups such as the NIHR and the Council for Allied Health Professions Research (CAHPR) joint research champions partnership. These contributions were valuable in supporting the recruitment strategy we utilised for the primary aspects of the research, especially the survey. Please see the handbook for more details.

The audience also anticipated some of the challenges we faced in ascertaining the depth of research being undertaken and made accurate predictions about the findings of both the literature reviews and the primary research elements. Participants were able to relate to their own work when suggesting that it was likely that we would find that the literature would be scattered amongst a wide variety of journals that represented a wide range of occupational therapy interests (e.g. biomedical and leisure journals), but also that the work might be badged under a different discipline and so be found in unexpected places (e.g. one participant was completing a funded PhD in psychiatry with an occupational therapy focus). These predictions were reflected in our research findings that, other than the BJOT, no single journal supplied more than 10 papers to this review. It appeared to be significant that often where there was an occupational therapy interest in a research paper there would only be one occupational therapist on a paper containing multiple authors from different disciplines.

Some members of the audience at the session in the 2019 RCOT conference spoke about the difficulties of undertaking occupational therapy research due to a lack of funding or time. This was reflected in the interviews with post-92 occupational therapy teaching institutions in which many said they did not have the capacity at present to focus on producing research. Occupational Therapists in the audience wanting to undertake research in practice voiced similar concerns as well as stating that often their research would be badged as service evaluation to reduce the demands of gaining ethical approval. Lastly, a few members of the audience stated that one of the challenges we might face is a lack of up–to-date information when trying to source information (e.g. staff profiles on university websites or up-to-date logs of research on ResearchGate). Again, there was some truth in these estimates, as although ResearchGate was a useful tool, staff profile pages at some universities were not up to date or staff were listed within a generic health group and not identifiable by profession. This made the task of identifying alternative interview candidates somewhat problematic.

What this research may have not included is any research conducted by university-based researchers that is conducted away from the institution and so may not be visible to the person that we interviewed from that institution. For example, the person we interviewed may not be aware of research carried out by colleagues that is self-funded or carried out in unpaid time. This is not an issue specific to occupational therapy, but might be important where the profile of the profession with regard to research is little known.

5.2 Places (Research Institutions)

The institutional interviews found that research and research consultancy were common amongst institutions with pre-registration occupational therapy programmes, although 24% of the institutions had no staff with funded research (Table 9). Secondments were uncommon in educational institutions (Table 9). Although they are well recognised within the NHS as a mechanism for generating research to improve patient care, with historical roles such as research nurses being common in the past, they are not yet equally taken up by all professions.

The survey and institutional interviews showed that research income came from a very wide variety of sources (Table 10 and 19). The assumption that being in research intensive universities, or in an institution with a medical school, would provide more research opportunities is not supported by the data which shows a strong performance across a range of funding sources in both groups of universities (Table 12).

In total, the literature review, survey and institutional interviews identified 155 different institutions (see Table 23) which were categorised as seen in Table 24. Thirty-two institutions were identified from all three activities, 113 from the literature review only, and 11 only from survey-provided weblinks.

Table 23 - Types of Institution Listed as an Affiliation in Occupational Therapy Research

Type of Institution	N
Academic Institutions	47
NHS Trust	71
Local Government	8
3rd Sector for Profit Organisation	7
3rd Sector Not For Profit Organisation	9
Non-UK institution	8
Not specified	5

Institutions that produced 10 or more papers between 2014 and the present are listed in Table 24.

Table 24 - Institutions Producing 10 or More Papers Since 2014 (names of universities removed to maintain anonymity)

	Number	Russell Group	Med School
University 1	40	y	Y
University 2	39	n	N
University 3	28	n	N
University 4	19	n	Y
NHS Trust 1	17	n/a	n/a
University 5	17	n	Y
University 6	17	n	Y
University 7	14	n	N
University 8	14	n	N
University 9	14	y	Y
University 10	12	y	Y
University 11	10	n	N
University 12	10	n	N
University 13	10	n	N

**13 out of 16 of the above institutions were interviewed as part of this project.

Further investigation of the nature and type of research done in these institutions is probably warranted as there is no evidence in this review that the more research-intensive universities (such as the Russell Group) produce more research. However, it is possible to infer from Table 24 that being at a university with a medical school may increase opportunities for research.

We identified 16 institutions with five or more occupational therapist researchers (affiliated with them in publications). Of note is that three NHS institutions appear on this list and all are based in London. It is important to note that the authors may not all be working in the institution at the same time, as this review covers 2014-2019.

5.3 Papers (Research Papers)

Three hundred and eighty-seven papers were identified through multiple pathways, of which 55% were published in journals not specifically targeted at occupational therapy or rehabilitation (Section 4.1.1). This is consistent with a view that modern healthcare research is often conducted by multi-professional teams working on specific research problems rather than in single-discipline research. There is no discernible trend by year of publication, but there is a predominance of qualitative and/or mixed methods research (65%) (Table 4).

Using the RCOT Specialist Section classifications (Table 5), there were three research areas for which the literature review provided the majority of research: SIG01 Children, young people and families; SiG07 Oncology and palliative care; SIG08 People with learning disabilities. In contrast, the literature found on SIG06 Older people was provided mostly from the weblinks survey respondents supplied. This may be due to the way affiliations are recorded in the journals that publish research in these areas (for example, the

professions of authors are recorded in the affiliations of some journals, but not others). Alternatively, the occupational therapy component of the research may be more clearly defined in some areas than in others.

Appendix D lists all the keywords used in the research databases for the research retrieved in this project. This is probably the best example of the breadth of occupational therapy practice and research. There are more than 3000 different keywords, which highlights the difficulty of designing a single search strategy. Using this many search terms would not be viable due to the number of hits that it would generate in the literature. We see this as a diversifying of occupational therapy, and yet such diversity is consistent with some of the core values of occupational therapy practice (42, 43). However, we also acknowledge that there are issues for the coherence of the profession (Hinojosa 2017) which means occupational therapy may be understood and presented in different ways by different sub-groups of occupational therapists (44). This latter point is why we insisted that paper screening be conducted by occupational therapists.

The literature review was a highly labour-intensive process. The initial manual text and abstract screening was complicated by the breadth of occupational therapy as a subject and the variety of journals occupational therapy research could be potentially found in. It was frequently difficult to assess from the title and abstract if the research had an occupational therapy focus to it. In other instances, it wasn't always clear from titles and abstracts if papers were conference papers or editorials and had to be included only to be excluded at the full text screening stage. Abstracts were often not available leaving the research associates with very little information to consider when deciding whether to include the article. For these reasons an inclusive approach was used where papers were included at title and abstract screening if the reader was unsure. Whilst this led to a thorough approach, it also made later tasks, e.g. full text screening, more labour intensive.

The Handbook in Section 4.2 provides more detail on how published conference abstracts were used to search for subsequent publications and the complexity of identifying occupational therapists from a list of authors. Both were labour intensive processes.

6. Discussion

One of the challenges of occupational therapy and its basis in occupational science is its breadth. The mantra of doing, being, becoming and belonging which constitute the "four dimensions" of the profession (45), implies a basis in everything that people accomplish, and for one discipline to encompass all this would be remarkable. Therefore, it is not surprising that the 387 journal articles should be published across 149 different journals, or that over 3,000 keywords were identified simply from the UK members of a profession over a five-year period (see Section 4.1 and Appendix D). However, the corollary of this is that the data may be diffuse and difficult to capture. Some of the reasons for that diffusion and diversity may be that:

- Occupational therapists work with many different professions in health and social care services (e.g., (7, 46)) and with clients experiencing a very wide range of conditions.
- Occupational therapy is often described as offering a bespoke or pluralistic approach to its clients, employing both interventions and their supporting theoretical constructs around the occupational needs of the person and influences from their environment. The remit of the profession is to address this diversity of occupational contexts, needs, and performances towards the most appropriate fit (Hinojosa, 2017).
- While there are many compensatory occupational therapy interventions, such as the supply of equipment, aids and adaptations, occupational need is determined by the client; hence any activity may potentially be assessed or incorporated into occupational therapy intervention if it has been defined as a key interest or part of that individual's occupational functioning.

The context of change in health and social care services has produced a concern about blurring roles throughout the history of the profession, but the recent half decade has seen significant structural changes in roles and the direction of services (47). Some of the studies and projects in the literature reported to us (e.g., (48)), have been conducted as unfunded pieces of work or evaluations which, we were told, were squeezed into the corners of researchers' professional and perhaps domestic lives. This may suggest that some occupational therapy research is carried on opportunistically, in an 'underground' and creative fashion, without access to funds. This might also be the kind of research which is not linked to doctoral study. Other commentators have linked research confidence to the possession of doctorates (49), but our review of research performance indicators found evidence that refutes this (see Section 4.1.1).

6.1 The Advantages and Disadvantages of Diversity

While the range of research topics appears to be related to clear clinical priority areas, significant numbers were concerned with researching the occupational therapy remit in new fields and widening provision (Table 5). The number of self-funded or unfunded studies and service evaluations (Table 19) may reflect topics that are themselves limited by opportunity, but which represent a means to acquiring research skills. Working opportunely creates a nebulous and organic approach to research which makes it more difficult to categorise and also to apply to practice (50). It is also more likely that wheels will be reinvented where the breadth conceals the tracks worn by others with similar interests. Here is where RCOT Specialist Sections could have an influence by connecting disparate researchers.

This project found that occupational therapists have published in a wide range of journals. Such a lively and rich body may not be able to achieve greater recognition because its diffusion may work against having enough critical mass in some areas to be seen as significant or coherent. There is a risk the profession may not be understood, or that its place in some fields may not be well recognised, if its evidence base is too disparate or underdeveloped. Nonetheless the performance of occupational therapy researchers should not be underplayed. From a UK profession of around 39,984 registered practitioners(51), there were 31 funded research projects, of which 14 were worth over £50,000, and 387 papers in 149 journals, averaging 50 a year. Whilst the greatest majority of these studies were UK based, there is clear evidence of partnerships with researchers in other parts of the world, and that many of these have been developed through research outside the academic environment. The new policy of publication open access for the Research Excellence Framework has made research articles available but doesn't include the wider body of evidence from scholarship and/or treatment recommendations which are not considered research.

6.2 Alignment with Research Excellence Framework Expectations

The breadth of the research identified in this review is entirely consistent with the comments from the Unit of Assessment 3 panel report for REF 2014 which noted:

> *"A broad range of robust research methodologies was noted and there was evidence of more national and international collaborations compared to the last exercise. The interdisciplinary nature of research was believed to be a key factor in this approach, enabling and facilitating collaboration among researchers across different disciplines and countries. This trend reflects a move away from a more uni-professional approach more evident in Research Assessment Exercise (RAE) 2008."*

Thus, it seems that the breadth and often integrated nature of occupational therapy research should be an advantage. The 2014 REF panel also noted:

> *"There remains considerable scope for development in this UOA, particularly in capacity and capability building and the support of early career researchers. The sub-panel identified that fostering a collaborative cadre of research active individuals with such expertise, equipped and resourced to deliver multicentre studies, was important for the future vitality and sustainability of these disciplines."*

The useful message here for occupational therapy research is the value in supporting early career researchers and multi-site research projects. Given the expansive nature of the occupational therapy profession (52), and many other AHP interventions, there is the constant problem of small numbers of clients/patients and thus study participants. Once one moves outside of acute care medicine, the health conditions of the people with whom occupational therapists work are often those that conventional medicine struggles to deal with, for example because they are related to social factors (53, 54). As a result, the 'health' benefits are often elusive and difficult to measure, in particular quality of life or social connectedness.

6.3 Finding an Efficient Process for Identifying Occupational Therapy Research

Occupational therapy research can be hard to identify as: it is often published in journals dealing with specific conditions; professional credentials of the authors are rarely listed, and occupational therapy is not well indexed in databases. This is not a unique situation and most health professions outside of medicine and nursing can be difficult to distinguish without looking up each author's online details.

Therefore, it was a difficult and labour-intensive process to identify occupational therapy research. Seven current occupational therapy students on the pre-registration MSc pathway, a literature review specialist, and two database specialists worked a total of 250 days to produce the literature reviews. All the research staff on the project had extensive previous work experience so quickly understood the processes and software packages, and repeated checks on the consistency of their decisions failed to find significant, or even minor, differences in their inclusion or exclusion decisions. Three processes, in particular, were labour intensive for both the post graduate occupational therapy students and the database specialists: 1) screening the initial literature searches, 2) full-text reviewing and 3) Extracting the necessary data. Section 5.3 provides more detail.

The identification of literature was further hampered by the different strategies used by the reference databases to import and/or standardise entries. Trained entry clerks process all Medline/PubMed entries and provide standardised keywords. Other databases rely on publishers supplying the correct information in the correct formats and are more like aggregators than processors. These differences produce semi-systematic defects in the data collected from the research databases for which the corrections can be only partly automated. Using an experienced database specialist who could write code greatly reduced the amount of time identifying, screening, and processing the papers. The database specialist set up an automatic process to import and aggregate the various sources of data and we estimate this saved the project at least 25 days of work.

6.4 Evidence Based Practice

During the literature search, several studies were found to discuss or evaluate barriers or facilitators to EBP, or interventions aimed at improving knowledge and use of EBP. Although clinicians' use of EBP alone was not considered to be an RPI in the scope of this review, this was an important recurring theme because the use of EBP indicates an understanding of the importance of research. Six studies included in the synthesis discussed the use of EBP by occupational therapists, including awareness of EBP, attitudes to or interest in EBP, sources of evidence used, critical appraisal skills, knowledge translation culture, and resources available to conduct EBP.

The selected literature suggests that there is a lack of knowledge on how to access evidence, conduct searches, appraise evidence, and apply evidence to practice. Lindstrom and Bernhardsson surveyed 93 Swedish occupational therapists working in primary care about their knowledge and attitudes to EBP. Forty-four percent of respondents indicated that they disagreed, or strongly disagreed, with the statement 'know how to access databases' (28). Fristedt et al. interviewed nine Swedish occupational therapists and found that participants mostly relied on knowledge taught in courses and their basic training as scientific evidence (26). In this study, those occupational therapists that did use a variety of sources for evidence often lacked the skills to critique it. The combined responses obtained by Cardin and Hudson's US survey of AHPs,

including occupational therapists, indicated that their most frequent EBP activities were utilising past experiences and problem solving with colleagues (23).

While lack of knowledge on how to conduct EBP is a persistent theme, another barrier that is frequently outlined is a lack of time or support. Nine Swedish occupational therapists indicated that lack of time, and leadership and organisation were barriers to EBP (26). In another Swedish survey of occupational therapists, 30% of respondents disagreed or strongly disagreed with the statement 'EBP is encouraged at workplace'(28). In a survey of US occupational therapists, 11% suggested that 'time' and 'workplace support' were large barriers to EBP (23).

It is recommended that organisations must promote a culture that encourages knowledge transfer and provides adequate time for learning about, and conducting, EBP (22, 23, 26). A survey of occupational therapists in Saudi Arabia indicated that over half (53%) had received no formal education in EBP (12). Indeed, Buchanan et al. conducted an intervention to identify whether a didactic or interactive EBP course would be most effective at improving EBP in South African occupational therapists (22). The authors noted that both groups achieved significant increases in knowledge, and when baseline knowledge was low, any mode of education would make a difference. The upshot of educating occupational therapists to have research skills such as the use of EBP may be that they are more likely to get involved in research (33). In interviews and focus groups with South African occupational therapists, 'opportunity and ability to do EBP' was cited as a strategy to increase research involvement.

6.5 Limitations

- There is a need to list of occupational therapy researchers within the UK. The lack of availability of such a list presented challenges to this project in that it was not possible to individually invite all occupational therapy researchers in the UK to participate in this study, nor to calculate response rates. This resource would be of considerable value to a similar project.
- A low response to surveys limited what we could learn about the situation of individual researchers
- The survey coincided with another RCOT project which initially caused some confusion. Respondents may not have recognised that there were two separate studies in progress and therefore only responded to one of them.
- Occupational therapy is a characteristically diverse profession which is distributed through many areas of health and social care. As occupational therapy work often takes place in multi-professional teams, literature search strategies concerning professional involvement in research must be inclusive of this diversity rather than specific to the profession.
- Occupational therapy literature is not reliably key-worded in research literature databases where the focus for choosing keywords is on the content of the research. This means that neither the professions conducting the research, nor its concepts are routinely articulated. Even systems such as that used by Index Medicus, which uses trained people to abstract article information and keyword the paper do not recognise this level of information.
- Most journals do not list professional credentials after an author's name. Not having this identifier available increased the workload substantially
- Most reviews of this type would have scanned the references of included papers, in particular, systematic reviews. This was not done because of the labour involved in checking every author was a UK occupational therapist.

7. Conclusions and Recommendations

On balance we found a vibrant research community with a passion for the research being conducted and working widely with other healthcare professions. We also identified some degree of isolation amongst those respondents who were involved in education or service provision outside the hospital sector. We also found researchers embedded in institutions where research is less valued than it could be, often people who were pursuing research projects despite the challenges, in creative and opportune ways. Encouraging the conversion of conference presentations into full papers is one specific activity that this review identified. Much of this work is being carried out by people who have not obtained doctorates, or who may be working towards masters' level qualifications. Perhaps, by the time a future review of occupational therapy research in the UK is completed, these researchers will have become high-fliers, but the future of the profession's research profile lies with the nurture and support for capturing this enthusiasm, realising this potential and enabling its navigation of the subsequent pathways it must take. Research is not an end in itself but has to involve careful and strategic positioning which not only develops an evidence base but is carried through to dissemination which identifies the significance of the occupational therapy contribution. RCOT is engaged in this process in a number of ways. In addition to owning BJOT which is published through SAGE, RCOT already provides members with news on research in its monthly OT News magazine, a Research Bulletin emailing that highlights occupational therapy research and opportunities in general, and offers Research Foundation Grants to its members. During 2019 and 2020, the James Lind Alliance is working with RCOT on a Priority Setting Partnership to identify the top ten research priorities for occupational therapy in the UK. Reciprocal agreements with several national professional bodies allow their respective members free access to major Anglophone occupational therapy journals.

Based on the methodology established by this research project, the Royal College of Occupational Therapists expects to perform periodic reassessment of UK occupational therapy research in the future. It is entirely possible to repeat this process in another 5 or 10 years using the Handbook provided. However, many of the process issues identified in this research are unlikely to have changed.

Therefore, we recommend several alternative processes that would make the next update easier:

require annual reporting of research outputs by the universities in part 3.1 of the accreditation process (see https://www.rcot.co.uk/node/2268/), perhaps through an additional section in the annual quality monitoring reports. This information could be collated and indexed by keywords, and distributed through the RCOT R&D Bulletin and through a section in the R&D pages of the RCOT website.

- lobby publishers to include professional qualifications to make identification of AHP contributions easier to identify
- work with the NHS, social care, and NIHR and other research funding bodies to increase the perceived value of engaging in research. In other consulting work we have seen some NHS Trusts experience a "sea change" in support for research while others need, largely economic, arguments as evidence to support the value of research. One effective approach is to support local attempts to make services more efficient as the value to managers is immediately

recognised. Of course, this is only useful if the findings are published and disseminated for lay/patient, clinical and academic readers.

- consider some funding for open access fees, perhaps on a grant basis.

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Appendix A - Interview Schedule

see also section xxx which includes the rationale for any changes

Interview ID - from the excel spreadsheet	
Interviewer Initials	

Prior to commencing interview

Check participant has sent back Participant Consent Form for interview. We must have this form prior to commencing the interview. If not ask interviewer to complete form (send consent and participant information forms again) and reschedule the interview by at least 30 minutes to allow them time to read the participant information sheet (this is an ethical requirement)

Ask participant if it is okay to record to make sure participant consents to recording

To say at the start of the interview-

This interview is about collecting organisation level data about the overall range of research activities, number of postgraduate students and staff research profiles in UK teaching departments and other research centres relevant to your AHP area (e.g. Occupational Therapy)

1) What is your current role title? And, what is the name of your department?
2) What university do you work for?
3) Since 2014, how many PhD students are carrying out OT-profession specific research at your university?
4) How many staff members have doctorates in this area?
5) How many staff members are working on a PhD and what are their fields of study?
6) At present, how many staff members are carrying out funded research? This includes audits and service evaluations.
7) Ask 8 before 7. At present, how many people are engaged in research consultancy? For example: Unpaid advice, research review panels, support with local trust.

8) At present, how many people are receiving income from funded research?
9) At present, how many people are on research secondments from the NHS or other bodies or are sponsored?
10) Since 2014, how many research and consultancy grants have been awarded for research at your institution? Can you direct us to the webpage with a list of these grants? If not, can you send a list?
11) Can you give a total estimate on the amount of money awarded to your department in research and consultancy grants since 2014?
12) What are the sources of your research and consultancy grants for research projects which finished in or after 2014? (might come from the answer to 10)
13) Since 2014, have you collaborated with other research institutions on research, if so which ones? E.g. joint funded, multiple institution work.
14) What markers of research quality or excellence are you using in your department/school/faculty/institution?
Notes

Prompt Interviewee to complete and share survey with colleagues

Appendix B - Survey Questions

Survey Questions: Contemporary Assessment of Occupational Therapy Research in the UK

	Questions
1	Welcome to the Contemporary Assessment of Occupational Therapy Research in the UK, conducted by the Royal College of Occupational Therapists (RCOT) in collaboration with Sheffield Hallam University. There is a maximum of 35 questions, most of which are multiple choice, and the survey should take 20 minutes to complete. We value confidentiality and any data collected will be anonymised and thus not uniquely identifiable in any published work.
2	By continuing with the survey, you agree that you have read through the Information Sheet (https://lessn.io/XsXtMJYJ) for this study and have had details of the study explained to you, and any questions about the study have been answered to your satisfaction. You are free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for the withdrawal or to decline to answer any particular questions in the study without any consequences to any future treatment by the researcher. You agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet. You wish to participate in the study under the conditions set out in the Information Sheet. You consent to the information collected for the purposes of this research study, once anonymised (so that one cannot be identified), to be used for any other research purposes.
3	Are you an active researcher (with project that completed between 2014 to present)?
4	Are you currently HCPC registered?
5	What is your last name?
6	What are your first and middle names?
7	If you have used any other name(s) professionally in the past, please specify below:
8	How would you describe your gender?

9	What is your age?
10	Where are you based?
11	What HCPC professional qualification(s) do you hold? (Please select all that apply)
12	Do you hold any of the following professional qualification(s)? (Please select all that apply)
13	Are you a current member of the Royal College of Occupational Therapists (RCOT)?
14	(Branch) Which RCOT Specialist Section(s) are you associated with? (Please select all that apply)
15	What are your primary working area(s)? (Please tick all that apply)
16	(Branch) Please specify your primary working area(s) below:
17	Which sector(s) do you primarily work in? (Please select all that apply)
18	(Branch) Please specify your job title:
19	(Branch) Please specify your primary working sector(s):
20	(Branch) Please specify your university appointment(s): (Please select all that apply)
21	In what year did you become professionally qualified?
22	What is the highest academic qualification you hold?
23	(Branch) Please specify the highest academic qualification you hold:
24	Do you have any knowledge of the Research Excellence Framework (REF) 2014?
25	Did you submit to the Research Excellence Framework (REF) 2014?
26	Will you be submitting to the Research Excellence Framework (REF) 2021?
27	What are your primary source(s) of research funding? (Please select all that apply)
28	(Branch) Please specify your primary source(s) of research funding:
29	What is the largest amount of funding for any study you have been involved in between 2014 to present? (in British Pound; Please enter only numerical values without any commas or currency symbols; This question can be skipped if you are unsure of the funding amount)
30	Have you participated in any unfunded research?

31	(Branch) What is the nature of the unfunded research project(s) you participated in?
32	(Branch) Please specify the nature of your unfunded research project(s)
33	Do you link current research into your teaching?
34	(Branch) Can you give some examples of how you link current research into your teaching?
35	Please provide the link of your institution profile webpage below: (Please skip to the next question if you do not have an institution profile webpage)
36	What is your email address?

Appendix C - Institutions, and Their Classification, Listed as Affiliations in Occupational Therapy Research

Institution	Institution Type
2gether NHS Foundation Trust, Gloucester	NHS Trust
AMPS UK and Ireland, Lancaster	3rd Sector Non Profit
Abertawe Bro Morgannwg University Health Board, Wales	NHS Trust
Adult Social Care, Leeds	Government
Age Exchange UK Centre for Reminiscence Arts	3rd Sector Non Profit
Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis	NHS Trust
Ayrshire Central Hospital, Irvine	NHS Trust
BMI Healthcare, London	3rd Sector Profit
Bangor University	Academic
Barnet Psychiatric Liaison Team, Springwell Centre, Barnet	NHS Trust
Barnsley Hospital NHS Trust	NHS Trust
Barts Health NHS Trust	NHS Trust
Belfast Health and Social Care	3rd Sector Non Profit
Birmingham City Council	Government
Bradford City Council UK	Government
Bradford Teaching Hospital NHS Foundation Trust	NHS Trust
Bristol Community Health, Bristol	NHS Trust
Broadmoor Hospital, West London Mental Health NHS Trust, Crowthorne	NHS Trust
Brunel University London	Academic
Buckinghamshire Healthcare NHS Trust	NHS Trust
CIS Westminster Rehabilitation Service	NHS Trust
Cambian Dilston College, Corbridge	Academic
Cambridgeshire and Peterborough NHS Foundation Trust	NHS Trust
Canterbury Christ Church University	Academic
Cardiff University	Academic
Central Manchester University Hospitals NHS Foundation Trust, Manchester	NHS Trust
Central and North West London NHS Foundation Trust	NHS Trust
Chailey Heritage Clinical Services	NHS Trust
Community Adult Mental Health and Specialist Drug and Alcohol Service, Wigtownshire	NHS Trust
Community Neuro Rehabilitation Team, First Community Health and Care, Oxted Therapies Unit, Oxted	NHS Trust
Conwy Single Point of Access Team, Conwy County Borough Council	Government
Coventry University	Academic
Dementia Pal Ltd, Southampton	3rd Sector Profit
Derby Hospitals NHS Foundation Trust	NHS Trust
Derbyshire Healthcare NHS Foundation Trust	NHS Trust

Division of Occupational Therapy, School of Health and Rehabilitation Sciences, The University of Queensland, Australia	Non-UK
East London NHS Foundation Trust, London	NHS Trust
Edinburgh Napier University	Academic
Fixby, Huddersfield	Unknown
Glasgow Caledonian University	Academic
Gordon Hospital London, CNWL NHS Foundation Trust, London	NHS Trust
Guy's and St Thomas' NHS Foundation Trust	NHS Trust
Head First	3rd Sector Profit
Hull and East Yorkshire Hospitals NHS Trust	NHS Trust
Humber NHS Foundation Trust, Willerby, Hull	NHS Trust
Imperial College London	Academic
James Cook University, Australia	Non-UK
Kaleidoscope Therapy Center, Singapore	Non-UK
Karolinska Institutet, Stockholm, Sweden	Non-UK
Keele University, Keele	Academic
Killamarsh and North Chesterfield Locality Mental Health Services	NHS Trust
King's College London	Academic
Kingston University London	Academic
Leeds Beckett University	Academic
Leeds Teaching Hospitals NHS Trust	NHS Trust
Leicester General Hospital	NHS Trust
Leighton Hospital	NHS Trust
Lewes and North Wealdon Occupational Therapy Team, East Sussex County Council County, Lewes	Government
Lincolnshire Partnership NHS Foundation Trust	NHS Trust
London	Unknown
London South Bank University	Academic
NHS Ayrshire and Arran	NHS Trust
NHS Lothian	NHS Trust
Newcastle University	Academic
Newcastle upon Tyne Hospitals NHS Foundation Trust	NHS Trust
None	Unknown
Norfolk Community Health and Care NHS Trust, Norfolk	NHS Trust
Norfolk and Norwich University Hospital NHS Trust	NHS Trust
North Bristol NHS Trust, Bristol	NHS Trust
North East London NHS Foundation Trust	NHS Trust
North London Forensic Service, Barnet, Enfield and Haringey Mental Health NHS Trust, Enfield	NHS Trust
North Monmouthshire Community Mental Health Team	Government
Northumbria University	Academic
Nottingham City Council	Government
Nottingham CityCare Partnership	NHS Trust
Nottingham University Hospitals NHS Trust	NHS Trust
Nottinghamshire Healthcare NHS Trust	NHS Trust

Occupational Therapy Department, The National University of Ireland Galway, Galway	Non-UK
Occupational Therapy Department, The Raphael Medical Center, Kent	3rd Sector Profit
Occupational Therapy, King's College Hospital NHS Foundation Trust, London	NHS Trust
Occupational Therapy, St Andrew's Healthcare, Northampton	3rd Sector Profit
Own business	3rd Sector Profit
Oxford Brookes University	Academic
Oxford Health NHS Foundation Trust, Oxford	NHS Trust
Oxford University Hospitals NHS Trust, Oxford Centre for Enablement, Oxford	NHS Trust
Pathfinder OPD Team, Langdon Hospital, Devon	NHS Trust
Pennine Care NHS Foundation Trust	NHS Trust
Poole Hospital NHS Foundation Trust, Stroke and Neurology Therapy Team, Poole	NHS Trust
Queen Margaret University	Academic
Queen Mary University of London	Academic
Royal Alexandra Hospital, Paisley	NHS Trust
Royal Derby Hospital	NHS Trust
Royal Devon & Exeter NHS Foundation Trust, Exeter	NHS Trust
Royal Hospital For Neuro-disability	3rd Sector Non Profit
Royal Hospital for Sick Children, NHS Lothian, Edinburgh	NHS Trust
Royal college of Occupational Therapists	Academic
Royal Trinity Hospice, London	3rd Sector Non Profit
Rushlake Green, East Sussex	Unknown
SHARP TEAM, (Social Inclusion and Hope and Recovery Project), South London and Maudsley NHS Trust	NHS Trust
School of Health Sciences, NUI Galway, Ireland	Non-UK
Sheffield Children's NHS Foundation Trust, Sheffield	NHS Trust
Sheffield Hallam University	Academic
Sheffield Teaching Hospital NHS Foundation Trust	NHS Trust
Shotley Bridge Hospital, County Durham	NHS Trust
Singapore Institute of Technology	Non-UK
South London and Maudsley NHS Trust	NHS Trust
South Mersey Community Mental Health Team, The Stables, Manchester	NHS Trust
South West London and St George's Mental Health NHS Trust	NHS Trust
South West Yorkshire Partnership NHS Foundation Trust, Wakefield, Yorkshire	NHS Trust
Southern Health NHS Foundation Trust, Southampton, Hampshire	NHS Trust
Southern Health and Social Care Trust, Portadown	3rd Sector Non Profit
St James House Recovery Team, Derby	NHS Trust
St Rocco's Hospice, Warrington	3rd Sector Non Profit
Staffordshire and Stoke on Trent Partnership NHS Trust, Haywood Hospital, Stoke on Trent	NHS Trust

Sussex Community NHS Trust	NHS Trust
Sussex Partnership NHS Foundation Trust	NHS Trust
Teesside University	Academic
The Children's Trust	3rd Sector Non Profit
The Meadows, Offerton, Stockport	NHS Trust
The Royal Marsden NHS Foundation Trust	NHS Trust
The Walton Centre NHS Foundation Trust, Liverpool	NHS Trust
Trafford General Hospital	NHS Trust
UK	Unknown
Ulster University	Academic
University College Cork	Academic
University College London	Academic
University College London Hospitals NHS Foundation Trust	NHS Trust
University Hospitals Birmingham NHS Foundation Trust	NHS Trust
University of Birmingham	Academic
University of Bradford	Academic
University of Brighton	Academic
University of Cape Town	Non-UK
University of Central Lancashire	Academic
University of Cumbria	Academic
University of Derby	Academic
University of Dundee	Academic
University of East Anglia	Academic
University of Leeds	Academic
University of Lincoln	Academic
University of Liverpool	Academic
University of Northampton	Academic
University of Nottingham	Academic
University of Plymouth	Academic
University of Salford	Academic
University of Sheffield	Academic
University of South Wales	Academic
University of Southampton	Academic
University of Warwick	Academic
University of Worcester	Academic
University of the West of England, Bristol	Academic
West Hertfordshire Hospitals, NHS Trust	NHS Trust
West London NHS Trust	NHS Trust
West Stroke Team, Camborne & Redruth Community Hospital, Peninsula Community Health, Cornwall	3rd Sector Non Profit
West Sussex County Council	Government
York St John University	Academic
Yorkshire Fatigue Clinic, Forsyth Business Centre, York, North Yorkshire	3rd Sector Profit

Appendix D - Keywords as retrieved from the literature in the research literature databases.

The following list of keywords clearly demonstrates the breadth of Occupational Therapy research. The terms are taken directly from the research databases so contain evidence of the Medical Subject Headings (MeSH) such as * and /. Some references also came from CINAHL which does not have standardised keywords

*activities of daily living
*attention
*cognition disorders
*disease complications
*evidence-based medicine
*fatigue
*health status indicators
*medical care
*medline
*multiple sclerosis
*psychological tests
*shoulder pain
*sleep
*stroke
3d
3d visualization
Absenteeism*
Academia
Academic achievement
Academic medical centers
Academic medical centers -- united kingdom
Academic performance
Accelerometers
Accelerometry -- methods
Accelerometry/methods
Accidental falls
Accidental falls -- prevention and control
Accidental falls -- risk factors
Accidental falls/*prevention & control
Accountability
Action research
Action research -- methods
Activities of daily living
Activities of daily living -- evaluation
Activities of daily living*
Activities of daily living/*psychology
Activity
Acute care
Acute care -- in old age
Adaptation, occupational
Adaptation, physiological
Adaptation, psychological
Adaptation, psychological*
Adipose tissue
Adjunct therapy
Adolescence
Adolescent
Adolescent behavior
Adolescent behavior*
Adrenal cortex hormones/administration & dosage
Adult
Advance care planning
Affect
Affect*
Affective disorders
Affective disorders, psychotic
After care
After care -- evaluation
After-hours care/*statistics & numerical data
Age factors
Age of onset
Aged
Aged, 80 and over
Aging
Aging/*physiology
Aging/*psychology

Aging/psychology
Alcohol addiction
Alcohol brief interventions*
Alcohol drinking -- education
Alcohol drinking -- in old age
Alcohol drinking/*psychology
Alcohol drinking/epidemiology
Alcohol drinking/therapy
Alcoholism -- education
Alcoholism/*therapy
Alcoholism/psychology
Allied health personnel
Allied health personnel*
Allied health personnel/*education
Allied health practitioners
Allied health professional
Allied health professionals*
Allied health professions*
Alternative therapies
Alzheimer disease*
AlzheimerÃ¢â‚¬â„¢s disease
Alzheimer's disease
Alzheimer's disease*
Ama guide
Amed (information retrieval system)
Amed database
Analgesia -- methods
Analgesia, obstetrical
Analysis of variance
Anger
Anthropology, cultural
Antibodies, monoclonal/therapeutic use
Anti-tnfÃ®Â±
Anxiety
Anxiety -- complications
Anxiety/*epidemiology
Anxiety/*psychology
Anxiety/diagnosis
Architectural accessibility
Arm
Art
Artery-only-replantation
Arthralgia/*diagnosis
Arthralgia/epidemiology
Arthralgia/physiopathology
Arthralgia/psychology
Arthritis
Arthritis -- diagnosis
Arthritis gloves*
Arthritis, rheumatoid/*complications
Arthritis, rheumatoid/*diagnosis
Arthritis, rheumatoid/*epidemiology
Arthritis, rheumatoid/*rehabilitation
Arthritis, rheumatoid/*therapy
Arthritis, rheumatoid/diagnosis
Arthritis, rheumatoid/drug therapy
Arthritis, rheumatoid/epidemiology
Arthritis, rheumatoid/physiopathology
Arthritis, rheumatoid/psychology
Arthritis/*epidemiology
Arthritis/*rehabilitation
Arthritis/diagnosis
Arthrometry, articular/*standards
Arthrometry, articular/methods
Arthroplasty, replacement, hip
Arthroplasty, replacement, knee
Arthroplasty, replacement, knee -- adverse effects
Arthroplasty, replacement, knee -- economics
Arthroplasty, replacement, knee -- methods
Arthroplasty, replacement, knee -- rehabilitation
Asd
Asperger syndrome
Assessment
Assessment*
Assisted living
Assistive equipment
Assistive equipment provision process
Assistive technologies
Assistive technology
Assistive technology devices
Assistive technology devices -- utilization
Assistive technology*

Asylum seekers*
At risk persons
Atose
Attachment behavior
Attention
Attention deficit disorder with hyperactivity/diagnosis
Attention deficit disorder with hyperactivity/etiology
Attention deficit hyperactivity disorder -- in infancy and childhood -- kuwait
Attention deficit hyperactivity disorder -- symptoms
Attitude
Attitude -- evaluation -- in infancy and childhood
Attitude measures
Attitude of health personnel
Attitude of health personnel*
Attitude to disability
Attitude to health*
Attitude to illness
Attitude to sexuality
Audiorecording
Audit
Australia
Autism
Autism spectrum disorder
Autism spectrum disorder/*psychology
Autism spectrum disorder/epidemiology
Autistic spectrum disorder
Automobile driving
Automobile driving/*psychology
Autonomy
Awareness
Ayres
Bandages and dressings
Bangladesh
Barthel index
Behavior
Behavior modification
Behavior modification -- methods
Behavior observation techniques
Behaviour change
Benzhydryl compounds/*therapeutic use
Biofeedback
Biomechanical phenomena
Biomechanical risk
Biomechanics
Biomedical and dental materials
Biomedical research/*trends
Body mass index
Body mass index -- evaluation
Body surface potential mapping
Body weights and measures
Borderline personality disorder -- physiopathology
Brachial plexus
Brachial plexus -- injuries
Brain damage
Brain injuries -- in adolescence -- united kingdom
Brain injuries -- in adulthood
Brain injuries -- in infancy and childhood -- united kingdom
Brain injuries -- rehabilitation
Brain injuries -- rehabilitation -- in adolescence
Brain injuries, traumatic/*complications
Brain injuries, traumatic/*psychology
Brain injuries, traumatic/*rehabilitation
Brain injuries, traumatic/drug therapy
Brain injuries/*complications
Brain injuries/*rehabilitation
Brain injuries/diagnosis
Brain injuries/economics
Brain injuries/physiopathology
Brain injuries/psychology
Brain injury
Brain ischemia/*diagnosis
Brain ischemia/*therapy
Brain ischemia/physiopathology
Brain ischemia/psychology

Brain neoplasms -- complications -- in infancy and childhood
British association and college of occupational therapists
British columbia
British nursing index
Budgets
Burden
Burnout, professional
Burns -- complications
Burns -- psychosocial factors
Burns -- rehabilitation
Business
Businesswomen
Buttocks/*physiology
Buttocks/blood supply
Canada
Cancer fatigue -- rehabilitation
Cancer survivors
Cancer survivors -- psychosocial factors -- australia
Care act
Care quality
Career
Career choice
Caregiver burden
Caregiver burden -- psychosocial factors -- iran
Caregivers
Caregivers -- education
Caregivers -- psychosocial factors
Caregivers*
Caregivers*/psychology
Caregivers/*psychology
Caregivers/*statistics & numerical data
Caregivers/psychology
Caregiving and interventions*
Carer
Carers
Carers*
Carpal tunnel syndrome
Carpal tunnel syndrome/*psychology
Carpal tunnel syndrome/*rehabilitation
Carpal tunnel syndrome/*surgery
Carpal tunnel syndrome/*therapy
Carpal tunnel syndrome/economics
Carpal tunnel syndrome/physiopathology
Case management
Case studies
Case-control studies
Casts -- evaluation
Cellular phone
Cerebral palsy -- complications
Cerebral palsy -- physiopathology
Cerebral palsy -- psychosocial factors -- in infancy and childhood
Cerebral palsy -- rehabilitation
Cerebral palsy*/rehabilitation
Cerebral palsy/*rehabilitation
Cerebral palsy/physiopathology
Cerebral palsy/psychology
Cerebrovascular accident
Cesarean section
Change management
Checklists
Chi square test
Child
Child behavior
Child development
Child developmental disorders pervasive
Child health services
Child health services*
Child health services/*standards
Child, disabled
Child, disabled -- england
Child, preschool
Childbirth
Children
Children and young people
Chi-squared test
Choice
Chronic disease
Chronic disease*
Chronic illness
Chronic obstructive pulmonary disease

Chronic pain
Cicatrix -- etiology
Cicatrix -- psychosocial factors
Cicatrix -- rehabilitation
Cinahl (information retrieval system)
Cinahl database
Citizenship and rights
Clinical assessment tool
Clinical assessment tool*
Clinical assessment tools
Clinical assessment tools -- evaluation
Clinical assessment tools -- utilization
Clinical audit
Clinical audit*
Clinical competence
Clinical competence*
Clinical competence/standards
Clinical guidelines
Clinical indicators
Clinical protocols
Clinical protocols*
Clinical screening
Clinical supervision
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Clothing
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Coconstruction
Coding
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Cognition disorders -- therapy
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Cognition disorders/*rehabilitation
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Cognition*
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Cognitive behavioral therapy*/economics
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Cognitive behavioral therapy/*methods
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Cognitive disabilities*
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Cognitive remediation*
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Coma/*drug therapy
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Communication*
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Complex regional pain syndromes -- psychosocial factors
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Constant comparative method
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Continuity of carer
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Crime victims/psychology
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Curriculum*
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Dash
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Dcd
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Decision making*
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Desistance
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Dexamethasone/therapeutic use
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Diabetic patients
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Differential item functioning
Diffusion of innovation
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Disability
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Disability evaluation*
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Disabled children
Disabled children*
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Disabled persons/*psychology
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Dominance, cerebral
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Dupuytren contracture/*diagnosis
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Dyspnea/*therapy
Early diagnosis
Early intervention
Early intervention (education)/statistics & numerical data
Early intervention*
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Eating
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Education, clinical -- standards
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Education, occupational therapy -- united kingdom
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Education, professional
Education, professional/*organization & administration
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Employment*
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Employment/*psychology
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England
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Environment design
Environment*
Environmental control units (ecu)*
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Epidermolysis bullosa
Epistemology
Equal opportunities
Equipment abandonment
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Ethics
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Evaluation
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Evidence-based medicine
Evidence-based medicine*
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Extreme sports
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Eyeglasses*
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Facilitation
Facility design and construction/*instrumentation
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Factorial trial
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Falls*
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Family attitudes

Family centered care
Family characteristics*
Family practice
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Family relations*
Family role
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Fatigue syndrome, chronic -- rehabilitation
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Financing, personal*
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Focus groups
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Foreign countries
Forensic medicine
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Games
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General practice/*organization & administration
General practitioners
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Geriatric assessment*
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Gloves, protective/*statistics & numerical data
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Golf
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Group processes*
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Guidelines*
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Hand function
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Hand pain*
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Hand strength
Hand strength/*physiology
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Hand*
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Handwriting -- education -- in adolescence
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Handwriting*
Hardiness
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Health and social care practitioners
Health behavior
Health care
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Health care delivery
Health care delivery, integrated -- evaluation
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Health care industry
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Health education/*standards
Health facility business ventures
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Health informatics
Health knowledge, attitudes, practice*
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Health personnel/*education
Health policy -- united kingdom
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Health professional, disabled -- psychosocial factors
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Health services accessibility/*statistics & numerical data
Health services needs and demand
Health services research
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Health*
Healthcare
Healthcare professionals
Healthy aging -- psychosocial factors
Healthy aging/*psychology
Healthy volunteers
Heart failure
Hemianopsia/*rehabilitation
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Higher education
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Hispanic americans
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Home environmental assessment and modification
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Home nursing -- equipment and supplies
Home occupational therapy
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Home safety*
Homeless men
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Homeless persons -- psychosocial factors
Homelessness
Homemakers
Homonymous hemianopia
Homosexuality, female/psychology
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Humeral fractures -- rehabilitation
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Hyperkinesis/*diagnosis
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Hypermobility
Hypoxia, brain/*complications
Hypoxia, brain/physiopathology
Icf
Identity crisis
Immigrants
Immobilization
Impact of events scale
Implementation
Incidence

Inclusion*
Income
Independence
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Infant, very low birth weight
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Inflammatory arthritis
Inflammatory arthritis*
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Informatics
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Information storage & retrieval systems
Informed consent
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Inpatient care*
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Inpatients/*psychology
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Instrument construction
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Intellectual disability
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Intensive care units
Intensive care units, neonatal
Intensive care units, neonatal -- psychosocial factors
Intention
Intention to treat analysis
Intentional relationship model
Interdependence
Interdisciplinary communication
Interface pressure
Interior design and furnishings
Interior design and furnishings/*standards
Intermediate care team
International classification of diseases
International classification of functioning
International classification of functioning, disability and health
International classification of functioning, disability and health*/standards
International classification of functioning, disability, and health
Internationality
Internet
Internet survey
Internet*
Interpersonal relations
Interpretative phenomenological analysis
Interpretative phenomenological analysis (ipa)*
Interpreters
Interprofessional relations
Intervention and service provision
Intervention development
Intervention trials
Interventions
Interview guides
Interviewing
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Interviews as topic
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Ireland
Ischemic stroke
Item response theory
Japan
Jeopardy areas
Jews
Job performance
Job quality
Job re-entry

Job re-entry -- statistics and numerical data
Job satisfaction
Joint instability -- classification
Joint instability -- therapy
Joint instability/*rehabilitation
Keywords
Kinematics
Knee joint -- physiopathology
Knee joint -- surgery
Knowledge
Knowledge -- evaluation
Knowledge synthesis
Kuwait
Labor costs
Language
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Laundering/*standards
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Laundry department
Leadership
Learning
Learning curve
Learning disorders
Learning disorders/*therapy
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Learning styles
Learning*
Learning/*physiology
Leisure activities
Leisure activities*
Length of stay
Length-of-stay
Levodopa/*therapeutic use
Libraries, health sciences -- united kingdom
Life change events
Life experiences
Life history review -- in old age -- japan
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Life style*
Life style, sedentary -- in old age
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Loneliness/*psychology
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Male
Management
Management and professional issues
Manualised intervention
Manufacturing industry
Margin of measurement variation
Marketing
Masculinity
Mass screening
Materials testing
Mathematical inequalities
Meaning
Measurement guidance
Mechanisms of action
Medical audit
Medical care
Medical cooperation
Medical imaging
Medical information storage & retrieval systems

Medical organizations
Medical practice, evidence-based
Medical records
Medical records*
Medicine
Medline
Members
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Memory disorders
Memory disorders -- therapy
Memory disorders/*rehabilitation
Memory disorders/diagnosis
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Memory*
Memory/physiology
Mental disorders
Mental disorders -- rehabilitation
Mental disorders -- therapy
Mental disorders -- therapy -- in adolescence
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Mental disorders -- united kingdom
Mental disorders/*economics
Mental disorders/*therapy
Mental disorders/epidemiology
Mental health
Mental health -- education
Mental health -- evaluation
Mental health personnel -- legislation and jurisprudence
Mental health personnel -- united kingdom
Mental health research
Mental health services
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Mental health services -- united kingdom
Mental health services/*economics
Mental health services/organization & administration
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Mental health*
Mental health/*education
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Mentally ill offenders
Mentorship
Meta synthesis
Metaphor
Meta-synthesis
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Middle aged
Midwifery
Military personnel -- psychosocial factors -- united kingdom
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Minority groups
Mixed dementia
Mixed methods research
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Mobility limitation*
Modafinil
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Models*
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Models, educational -- evaluation
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Models, theoretical*
Modification of theory
Modified cohort randomised controlled trial
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Mothers/*psychology
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Motor activity
Motor activity*

Motor disorders/*physiopathology
Motor disorders/*psychology
Motor disorders/rehabilitation
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Motor skills disorders -- diagnosis -- in adulthood
Motor skills disorders -- diagnosis -- in middle age
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Motor skills disorders -- symptoms -- in middle age
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Motor skills disorders/*diagnosis
Motor skills disorders/*physiopathology
Motor skills disorders/*rehabilitation
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Motor skills*
Motor-based occupational performance
Mountain biking
Movement
Moving and handling
Moving and lifting patients/*adverse effects
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Moving and lifting patients/instrumentation
Multicenter studies
Multidisciplinary
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Multidisciplinary care team -- england
Multidisciplinary team-care
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Multimethod studies
Multimorbidity
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Multiple sclerosis
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Multiple sclerosis -- rehabilitation
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Muscle strength
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Muscle, skeletal/physiology
Muscular atrophy, spinal/physiopathology
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Musculoskeletal conditions*
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Musculoskeletal diseases -- diagnosis
Musculoskeletal diseases -- physiopathology
Musculoskeletal diseases -- risk factors
Musculoskeletal diseases*/classification
Musculoskeletal diseases*/psychology
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Musculoskeletal pain/*prevention & control
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Needs assessment*
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Networking
Neuralgia/*rehabilitation
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Neuropsychological assessment
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Neuropsychological tests
Neuropsychological tests*
Neurorehabilitation
New south wales
Nicu*
Nih stroke scale
Nonexperimental studies
Non-malignant disease
Nonparticipant observation
Non-randomized controlled trial
Northern ireland
Norway
Norwegian self-assessment of modes questionnaire
Nose replantation
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Observer variation*
Obstetrics
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Occupation (human)
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Occupation*
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Occupational health
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Occupational health*
Occupational health*/economics
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Occupational-related injuries
Occupational-related injuries -- therapy -- united kingdom
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Old age
Older adults
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Oncologie
Oncology
One-way analysis of variance
Online services
Online surveys
Optimism
Organisational behaviour
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Orientation
Orthopedic equipment and supplies
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Orthopedics
Orthoptist
Orthoses
Orthotic devices*
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Osteoarthritis/*therapy
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Outcome assessment (health care)/*methods

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Pain/*etiology
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Paired t-tests
Pakistan
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Palliative care*
Palliative care/*organization & administration
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Parental attitudes
Parental role
Parent-child relations
Parent-child relations*
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Parenting*
Parenting/*psychology
Parents
Parents of disabled children
Parents of disabled children -- psychosocial factors
Parents of disabled children -- psychosocial factors -- pakistan
Parents*
Parents/*education
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Paresis/*complications
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Participant observation
Participation
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Partnership
Partnership*
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Paternal attitudes
Patient acceptance of health care
Patient acceptance of health care*
Patient and public involvement
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Patient care team*

Patient care team/*organization & administration
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Patient care*
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Patient collaboration
Patient compliance
Patient discharge
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Patient discharge/*standards
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Patient education
Patient education as topic/*methods
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Patient isolation
Patient participation*
Patient perceptions
Patient perspectives
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Patient reported outcome measures*
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Patient satisfaction/*statistics & numerical data
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Patient selection
Patient transfer*
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Pausing
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Pediatric
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Pediatric occupational therapy -- methods
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Perception
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Performing artists
Perinatal stroke*
Peripheral nerve
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Persistent vegetative state/*diagnosis
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Persistent vegetative state/*etiology
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Personal care services
Personal narratives
Personal satisfaction
Personal values
Personalisation
Personality disorders
Person-centered care
Personnel, hospital
Phenomenological research
Phenomenology
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Photography
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Physical and rehabilitation medicine/*standards
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Physiological stress*
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Physiotherapy*
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Policy making
Polio
Politics
Population
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Post hoc analysis
Posterior cortical atrophy
Postnatal care
Postnatal*
Postoperative care -- methods
Postoperative complications
Postpoliomyelitis syndrome/*rehabilitation
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Posttraumatic stress disorder
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Postural orthostatic tachycardia syndrome -- therapy
Posture
Posture/*physiology
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Power (psychology)
Powered wheelchair
Powered wheelchair*
Practice
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Practice guidelines as topic*
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