

REACH: Overview of Publications from ECEHH

The following document outlines a review of publications by people affiliated with the European Centre for Environment and Human Health (ECEHH, hereafter 'the centre'), a research centre at the University of Exeter, between the founding of the centre in 2010 and when the work was carried out in late January/early February 2022. The work presented here is the result of significant collaborations and contributions from all members of the REACH team in line with the wider principles of collective working within the REACH project. Thanks to the Advisory Board for feedback and input into the development of the aims and methods for the literature searches. Special thanks go to Dr Sheray Warmington, Riadh Gemmour, Dr Sabiha Allouche, Dr Olivia Barnett-Nagshineh, Prof Lora Fleming and Dr Beth Roberts for providing search terms during literature searches; this work was led by Dr Daniel Derbyshire.

The document consists of the following structure. First, the aims and objectives of the work are outlined. Secondly, the methods are presented in a detailed and replicable way that also includes practicalities relating to processes of team working and collaboration. Thirdly, the findings of the work are presented. Next, limitations of the work carried out are discussed and finally there are some concluding remarks.

Aims and Objectives

When developing the funding proposal for what would become the REACH project, we wanted to get a better sense of *what the centre does*. We collectively decided that somehow getting an overview of the peer-reviewed publications authored by members of the centre would be an appropriate approach to doing this. In particular, we were interested a number of aspects relating to the research outputs, including;

- The geographic locations where research has taken place
- The extent to which publications include international collaborators as co-authors
- The extent to which ECEHH research has considered marginalised groups and colonial contexts with their research

Methods

Process

During the formation of the grant proposal for this project, Dr Daniel Derbyshire was assigned to nominally lead for this particular strand of work on the basis of collaborative discussions amongst the growing network of REACH collaborators about planned activities, etc. We reached out to an Information Specialist (Morwenna Rogers) from PenARC (NIHR Peninsula Advanced Research Collaboration) with whom members of the team have worked before to assist in building the search strategy and to conduct the searches on our behalf.

This activity was a recurring agenda item for feeding back regular updates to the wider team and there were periodic specific meetings at various stages of the process (i.e., developing the search strategies, planning how to use the list of publications, planning and conducting the keyword analysis, reviewing findings and conclusions). These meetings were open to the entire REACH team and conducted on the same basis and principles as all REACH meetings and activities. They also frequently involved practical work being done during meetings, for example practically building search strings within EndNote.

Literature Searching

A search was run on Scopus for the affiliation name with several terms to cover variations¹. This returned 802 records which were exported into EndNote. For the first 100 records returned in Scopus, each named author from ECEHH was selected. A search was then carried out for each author using their unique Scopus identification number. Publications that did not include ECEHH in the author's affiliation were only added to EndNote if published during or within a year after their contract with ECEHH, and if their affiliation was broadly 'University of Exeter.' After the first 100 records, the remaining names of ECEHH researchers were combined with the affiliation, and then author IDs searched separately in combination with the affiliation 'Exeter'. Other affiliation words were tested, e.g. 'knowledge spa', 'Truro' and 'Plymouth' in combination with the author names but made no additional finds. An institution search was also run in MEDLINE and CAB Abstracts, then deduplicated against the EndNote library (the full search strategy is available in a separate appendix). A total of 962 records attributable to ECEHH authors were found and saved to EndNote of which 897 came from Scopus, 46 from MEDLINE and 5 from CAB Abstracts.

Bibliographic Analysis

For the keyword frequency analysis, specific search terms were constructed in the EndNote library that include several terms to cover variations of language (e.g., and operate across multiple fields (e.g., title or abstract) where appropriate. Groups and group sets were created in EndNote to collate these various search terms. The results of these search terms were then converted into an Excel file for use in data reporting and visualisation.

A piece of software called VOSviewer was used to create interactive keyword co-occurrence maps. A thesaurus file was created to combine similar terms such as human and humans or women and female.

Findings

The centre has had a prolific and increasing research output, publishing in excess of 100 publications per year since 2018. Figure 1 provides an overview of the number of publications per year (note, 11 publications for 2022 were found but considering the searches were conducted in late Jan/early Feb these were excluded from the figure).

Keyword Maps

Figure 2 shows a keyword co-occurrence map for the 962 publications featuring the 352 most commonly used keywords. A link to an interactive version of the map can be found here ([Interactive Keyword Co-occurrence Map](#)). Bigger circles represent keywords that occur more frequently and thicker lines between pairs of keywords indicate greater rates of co-occurrence between those keywords. Further, the colour palette shows the temporal dynamics of keyword usage over time (darker blues represent keywords that were used further back in time on average; brighter yellows represent keywords that were used more recently in time on average).

Figure 3 presents a similar map to Figure 2, except that Figure 3 focuses on the occurrence of words in the titles and/or abstracts of the publications. A link to an interactive version can be found here ([Interactive Abstract and Title Word Co-occurrence Map](#)). Figure 3 in particular shows a shift in the

¹ (AFFIL ("european centre" OR "european center") AND AFFIL (environment*) AND AFFIL ("human health") OR AFFIL (ecehh))

research dynamics over time, shifting away from more clinical terms ('disease', 'patient', 'treatment', 'infection') in the earlier time period to more social and experiential approaches ('perception', 'attitude', 'experience', 'context') in later years.

Keyword Frequencies

Table 1 includes the number of publications in which the title, abstract or keywords mentions certain sociodemographic characteristics or related concepts. As can be seen, gender is a frequently mentioned concept, occurring in approximately 25% of abstracts, titles or keywords (acknowledging that male and female have significant co-occurrence). Similarly, age and ageing related terms again appear in approximately 25% of all the publications from the centre in our database. Thus, age and gender are frequently considered sociodemographic characteristics within the research outputs of the centre.

By contrast, other sociodemographic characteristics receive significantly less mentions with the titles, abstracts or keywords of centre publications. Ethnicity is mentioned in around 2% of centre publications (22 mentions for ethnicity in titles, keywords or abstracts). Disability is mentioned in just over 1% the centre's publications (13 publications total), whilst sexuality has just 5 mentions across our database of publications.

Location of Study

Figure 4 shows a breakdown of the number of mentions of specific countries in either the title, abstract or the keywords of a given publication. Perhaps unsurprisingly, the United Kingdom is by far the most commonly mentioned country, appearing in just over 20% of the publications reviewed. Further, as can be seen, more than half of the mentions of specific countries are of European countries which is again perhaps unsurprising given the name of the centre. When also including other 'Western' countries such as USA, Canada and Australia, such mentions account for around 75% of all country specific mentions in titles, abstracts or keywords.

Co-author Affiliations

Figure 5 presents similar information to Figure 4, except that instead it shows the number of mentions of specific countries in the author's address field (i.e., the author's institutional affiliation). This gives us an overview of the geographical distribution of the co-authors publishing papers with members of the ECEHH (we exclude the United Kingdom as it would necessarily return all papers). The United States and Australia are by far the most common locations of co-authors, followed by Netherlands and Germany. In general across all countries, collaborations with co-authors from a given country are more common than studies about that country.

Limitations

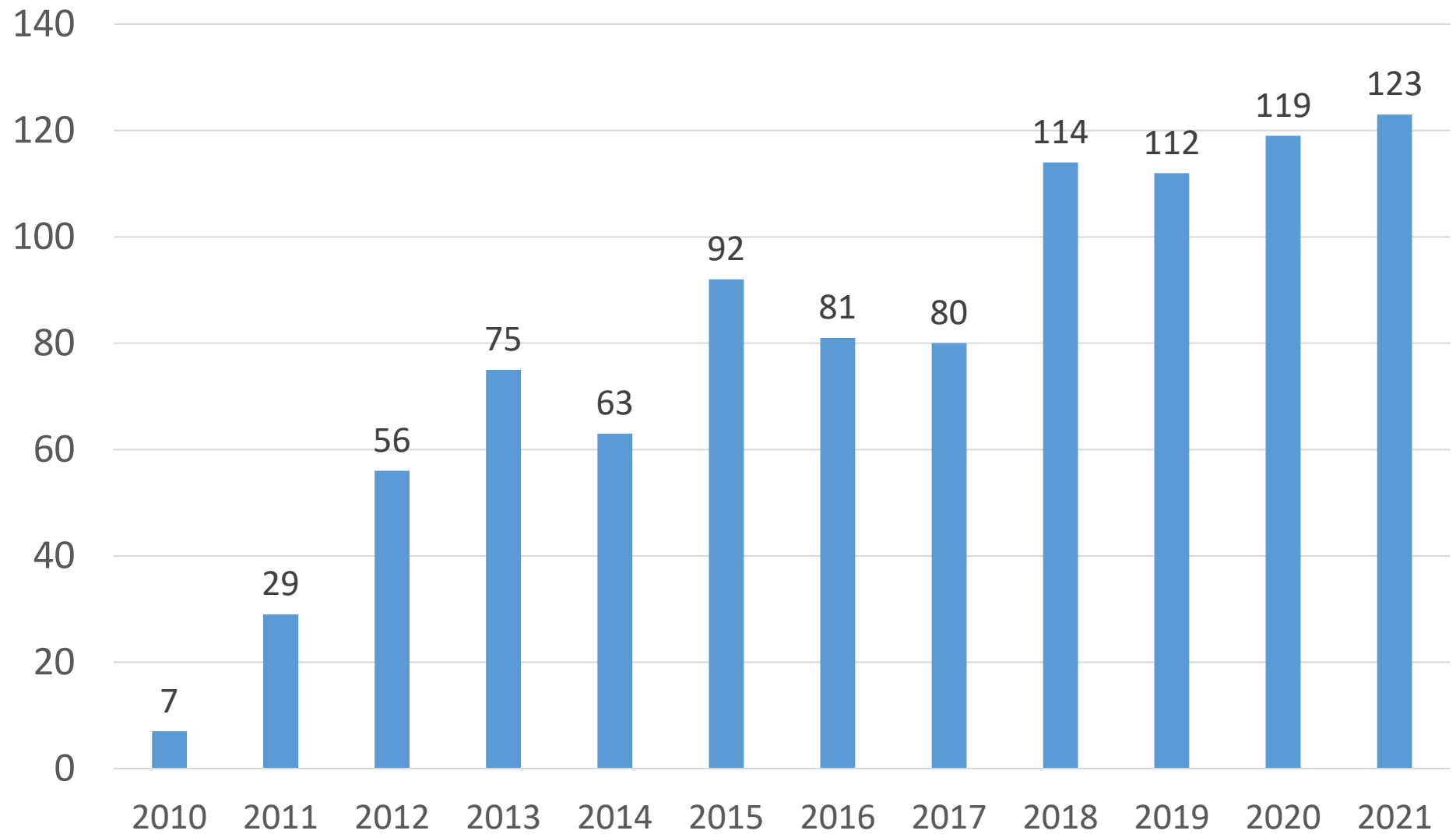
Whilst care was taken to utilise a rigorous and systematic approach, we acknowledge that the work has limitations – largely imposed by budgetary constraints on the project. The following limitations should be taken into account when considering this work;

- Our database of 962 likely does not contain all publications by members of the centre across the time period (e.g., because centre members report different affiliations (i.e., University of Exeter Medical School)) and that also while effort was taken to remove duplicates, some may remain.
- Just searching titles, abstracts and keywords of papers may miss important contexts and considerations of these issues contained within the full text of the papers.

Conclusions

The centre has generated significant and increasing research output during the time since it started. This research has significant international (particularly European) scope and involves collaborations with a network of co-authors located across a broad range of countries around the world. Time based keyword maps show a shift away from mostly clinical research and approaches to more subjective and experiential approaches. A substantial proportion of publications considered issues of either race and/or gender, whilst other sociodemographic characteristics receive significantly fewer mentions within our database of centre publications.

Figure 1: Number of Publications per Year



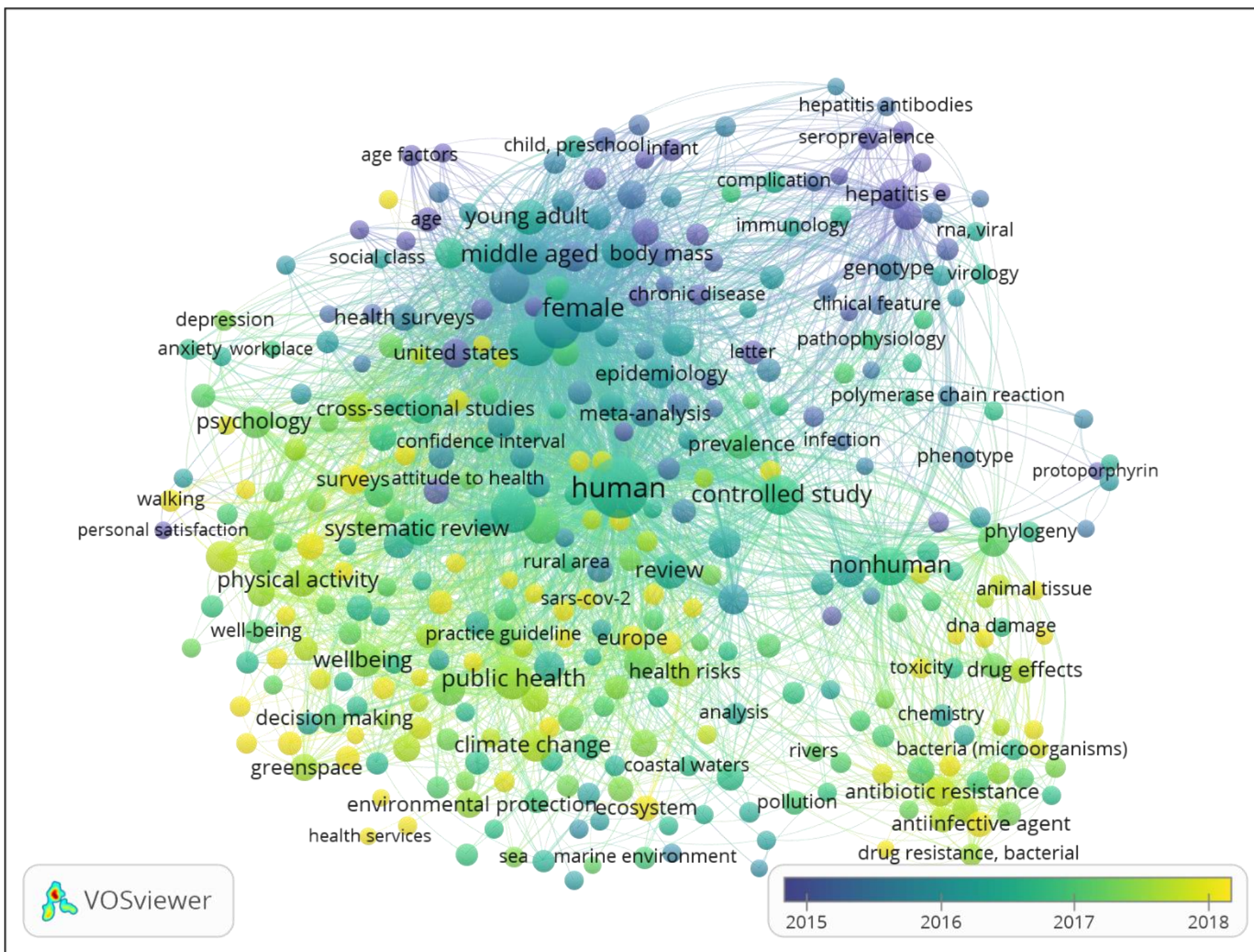


Figure 2: Co-occurrence map for the 352 most commonly occurring keywords across the 962 ECEHH publications.

Search Terms	Results
Age Related Terms	
Adolescent	92
Age OR aged OR older OR ageing	208
Child OR children OR infant	72
Gender Related Terms	
Gender	17
Men OR male	234
Women OR female	246
Transgender	1
Race/Ethnicity	
Afro-Caribbean	2
Ethnicity OR ethnic	22
Hispanic	5
Race	5
Disability	
Disabled OR disability	13
Socioeconomic Status	
Income	46
Lower economic	6
Inequalities OR inequality OR disparity OR socio-economic OR socioeconomic	44
Sexuality	
Sexuality	5

Table 1: Keyword frequencies for selected search terms

Figure 4: ECEHH Publications Mentioning Specific Countries in the Title, Abstract or Keywords

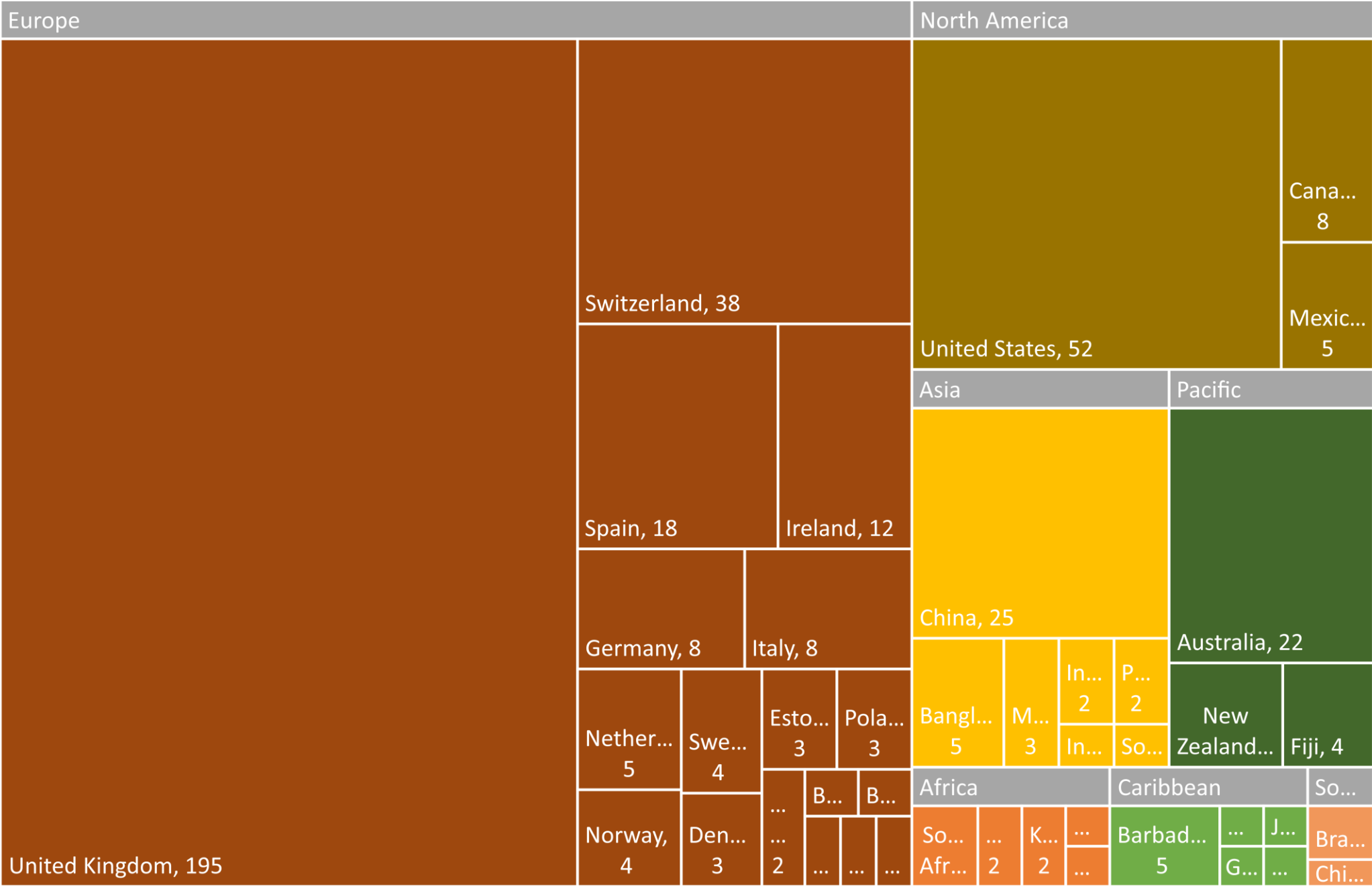


Figure 5: ECEHH Co-Author Locations by Country and Continent

