What is the early mobility of female doctoral holders, what types and subjects were their doctoral degrees in and what is the reported impact of early career mobility on physical and mental health and well-being of female doctoral holders? A systematic review.

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Review question
What is the early mobility of female doctoral holders, what types and subjects were their doctoral degrees in and what is the reported impact of early career mobility on physical and mental health and well-being in this population?

Searches
A preliminary search for existing systematic reviews and/or scoping reviews on the topic was conducted. There are limited primary research papers and research syntheses available on this topic. However, no other systematic review has been published or registered with Prospero or Cochrane, which specifically focuses on what the international careers of female doctoral holders are and what type of doctoral degree they hold.

The search will include both quantitative and qualitative studies published after 1980. There will be no restrictions on study design. Languages will be limited to English, Spanish, Italian, French and Czech only. The search strategy will be created by an expert in systematic review searching, in collaboration with the authors and piloted in one chosen database. Once this strategy is finalised, it will be adapted to the syntax and subject headings of the other databases.

Key words
For preliminary searches the following key words will be used:

(‘women’ OR ‘female’); AND (‘career’ OR ‘early career’); AND (‘PhD’ OR ‘doctorate’ OR ‘doctoral holder’); AND (‘international’ OR ‘mobility’)

Syntax
To be finalised when preliminary searches were done.

The preliminary searches will be done in Education Resources Information Centre (ERIC) with the key words outlined above. When preliminary searches are completed the full searches will be run in the following electronic databases will be searched:

- ERIC
- Education Research Complete
- JSTOR
- Scopus
- Taylor & Francis Journals Online
Additionally, grey literature will be searched in OpenGrey, Google and Google Scholar. The search term "international early careers of female doctoral holders and types of doctorates" will be used to identify grey literature because they were identified as the most relevant terms in the exploratory and database searches. In addition, reference lists of all relevant studies, reviews and reports will be searched.

Types of study to be included
Articles and reports related to the topic around the types of doctorates reported in the literature and the careers of female doctoral holders will be identified through searches using electronic databases. The purpose of the current systematic review is to synthesize all relevant available knowledge. To provide a comprehensive overview of this research topic, all existing literature will be included, e.g. primary research studies, systematic reviews, meta-analyses, letters, guidelines, websites etc. The search will be limited to literature written in English, Spanish, French, Italian, French and Czech and published worldwide and after 1980 when there were noticeable increases in the number of women starting to pursue doctoral studies (Nerad & Hegelund, 2008).

Condition or domain being studied
Women's access to universities was led by feminist movements in the second half of the 19th century in Europe (Wakeling et al., 2015). However, wide access to undergraduate and postgraduate studies for women was not possible until much later. Today, more women are attending university than men across the world, however unconscious bias and lack of equal opportunities are still leading to unequal access to education and jobs for women (WEF, 2020). For instance, in the UK, it has been reported that, despite the fact that more women than men consider themselves unsuited to postgraduate study and are unhappy with studying at undergraduate level, applications to master studies are still higher among women than men; however, they are less likely to get a place than men (Rowold, 2010).

Studying at doctoral degree brings about high level of stress also because female students/candidates often juggle family as well. Stress has been reported on having negative outcomes on both physical and mental health and well-being. We are therefore interested what does the literature report in relation to achieving a doctoral degree and going through transitions relating to career changes and mobility.

Participants/population
Eligible participants include: Women, female doctorate holders, aged 22 – 55 years, what happened to their careers within the first 5 years after acquiring their doctorates?

Intervention(s), exposure(s)
Type & subject of doctorate, career mobility career transitions

Comparator(s)/control
none

Main outcome(s)
1. Identify the types and subjects of doctorates achieved by female doctorate holders.
2. Reveal the international career trajectories of female doctoral graduates: taking into account international mobility, careers & employability.
3. Consider the relationship between their degrees and their international careers – i.e. career progression as well as disciplinary changes.
4. Examine the types of contracts and roles women take on at different points after graduating (within the first 5 years after graduating).
5. Explore how career progression affects women’s physical and mental health and wellbeing.
6. Was there a reported improvement in terms of salaries, careers and career choices, career pathways and career progression, changes in their professional life, confidence and self-esteem, international renown.

* Measures of effect
Not applicable.

Additional outcome(s)
It is well known that stress can be behind physical as well as mental health and wellbeing decline. Doctoral studies represent a lot of stress as people usually do doctoral studies while working full time and or having families. The amount of stress that accumulates during doctoral studies is not negligible and may impact on health and wellbeing of individuals, although in different ways as everyone copes and or manages stress in different ways. Due to lack of literature published in this area we don’t have many choices about specific measures used by researchers. For these reasons we would be taking into account:

Physical health outcomes: any self-reported measures of physical health and or wellbeing
Mental health outcomes: any self-reported measures of mental health and or wellbeing

* Measures of effect
Not applicable.

Data extraction (selection and coding)
Data for analysis will be extracted from the included studies and managed in an Excel spreadsheet. A data extraction sheet will be developed which will be tailored to the requirements of the review. The data extraction sheet will be tested on three included papers and, where necessary, it will be revised to ensure it can be reliably interpreted and can capture all relevant data from different study designs.

Study selection (both at title/abstract screening and full text screening) will be performed by two reviewers. Any disagreements will be solved by consensus or by the decision of a third reviewer where necessary. After eliminating the duplicates (studies that are identified more than once by the search engines), an initial screening of titles, abstracts, and summaries (if applicable) will be undertaken to exclude records that clearly do not meet the inclusion criteria. Each record will be classified as ‘include’ or ‘exclude’ or ‘maybe’ with comments to identify relevant and exclude irrelevant literature. The researchers will be inclusive at this stage and, if uncertain about the relevance of a publication or report, it will be left in. The full text will be obtained for all the records that potentially meet the inclusion criteria (based on the title and abstract/summary only). All the full text papers will be screened against the inclusion criteria, using a standardized tool. Studies that do not meet the inclusion criteria will be listed with the reasons for exclusion. An adapted PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) flow-chart of study selection will be included in the review (Moher et al., 2015).

Two reviewers will independently extract data from each included study and insert this into the Excel spreadsheet. Disagreements will be resolved by discussion. Study authors will be contacted to resolve any uncertainties.

Risk of bias (quality) assessment
One reviewer will independently assess the risk of bias using the Cochrane risk of bias tool (Cochrane Library, 2011; Higgins et al., 2011), which includes the following domains: random sequence generation, allocation concealment, blinding of outcome assessors, completeness of outcome data, and selective outcome reporting. We also plan to assess the following additional sources of bias: baseline imbalance and inappropriate administration of an intervention as recommended by the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2011). Studies will be judged at high risk of bias if there was a high risk of bias for 1 or more key domains and at unclear risk of bias if they had an unclear risk of bias for at least 2 domains. Authors of papers will be contacted if information is missing.

Strategy for data synthesis
Findings from included studies will be synthesized narratively. The ‘Guidance on the Conduct of Narrative Synthesis in Systematic Reviews’ will be used to advise the narrative synthesis (Popay et al., 2006). First, a preliminary synthesis will be conducted to develop an initial description of the findings of included records and to organize them so that patterns across records can be identified. In a second step, thematic analysis
will be used to analyse the findings. The following five steps of thematic analysis will be followed adopting a recursive process (Braun & Clarke, 2006):

a) Familiarization with the extracted data

b) Generation of initial codes

c) Searching for themes

d) Reviewing themes

e) Defining and naming themes

Depending on the findings available, the reviewers will aim to provide a flow chart mapping the international careers of female doctorate holders and the types of doctorates they had studied. This review will highlight their extent to which women build their careers internationally and on their chosen disciplinary subjects based on job opportunities involving geographical and cultural relocations after getting a doctorate. Therefore, it is expected that it could offer insights on how their professional identities are shaped and the real impact of their qualifications. The information presented in this review may be considered, in the future, by doctoral degree providers and funding bodies when planning future support for the growing population female doctorate holders.

Analysis of subgroups or subsets
Not applicable.

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Organisational affiliation of the review
The Open university

Review team members and their organisational affiliations
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Type and method of review
Narrative synthesis, Systematic review

Anticipated or actual start date
04 March 2020

Anticipated completion date
30 June 2021

Funding sources/sponsors
none at present - application for funding is being processed by PRAXIS Fund at The Open University

Conflicts of interest

Language
English

Country
England

Stage of review
Review Ongoing
Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Career Mobility; Female; Humans; Mental Health; Physical Examination; Physicians; Range of Motion, Articular

Date of registration in PROSPERO
02 July 2020

Date of first submission
06 May 2020

Stage of review at time of this submission

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The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions
02 July 2020

This information has been provided by the named contact for this review. CRD has accepted this information in good faith and registered the review in PROSPERO. The registrant confirms that the information supplied for this submission is accurate and complete. CRD bears no responsibility or liability for the content of this registration record, any associated files or external websites.