

A review of quantitative analytical training needs for users of longitudinal studies

Executive summary

The ESRC makes considerable investments in longitudinal studies which support the understanding of population trajectories over the life course in changing contexts. In the 2017 Longitudinal Strategic Review¹, it was noted that despite existing initiatives, training capacity needs to be improved. This training is fundamental to building the skills required to use these longitudinal studies effectively and to their full potential. The ESRC commissioned CLOSER² to conduct a review of these training needs. The aim of this summary report is to present high-level findings on the provision of quantitative data analysis training for users of longitudinal studies, and to provide recommendations for improvement to the availability and scope of training currently available. The scope of this review was for training provided at the post-graduate, early-mid career and continuing professional development level.

Review strategy

The review consisted of two main activities:

1. Mapping existing training (non-exhaustive)
2. Consultation of key stakeholders:
 - Survey of current users of longitudinal data (304 responses);
 - Focus group of users/future users of longitudinal data held during a free one day workshop on longitudinal data and related teaching resources provided by CLOSER, Understanding Society, Centre for Longitudinal Studies and the UK Data Service (14 attendees);
 - Consultation with three senior academics involved in the analyses of longitudinal studies and training provision.

Key findings

The main findings from this review are:

1. Successful analysis of longitudinal data involves being able to:
 - handle/clean the data;
 - use basic quantitative statistical methods;
 - employ advanced methods.

However, these do not always progress consecutively.

2. In regards to existing training, it was found that:
 - Training tends to be based on a particular statistical method or undertaken in relation to a specific study;
 - The majority of training provided is for quantitative statistical methods (both basic and advanced) with a paucity of training on how to handle/clean data;
 - Training is provided in a variety of formats including face-to-face and online, with the most common mode being face-to-face;
 - Training is provided by organisations such as the National Centre for Research Methods (NCRM) and university departments. The studies themselves also provide training particularly in relation to study-specific topics;
 - The majority of the survey respondents (79%) felt there were no significant overlaps in training but 78% felt there were major gaps.
3. The major finding from the focus group, survey and consultation with the senior academics was that there are clear gaps in training provision for initial

data handling/cleaning and a lack of real-life, “messy” datasets to support training. It was noted that even if the theoretical statistical methods are known, the application of these methods to real-life longitudinal datasets can be difficult.

4. Survey respondents identified short-courses as being the best mode for training. This was followed by mentor- or supervisor-led support.
5. Since supervisors are a major source of training, staff who support early career researchers should have better training themselves, for example through increased training provision for mid-career researchers.
6. A number of barriers to accessing training were identified including location and affordability. Removing such barriers could involve delivering training across multiple formats and increasing open-access training material.

Recommendations

Using the information gathered in this report, CLOSER had made the following recommendations to improve training for longitudinal data analysis:

1. Develop a central resource dedicated to longitudinal data analysis training, building on current initiatives and signposting to existing resources (e.g. longitudinal training advertised through the National Centre for Research Methods).
2. Develop a coherent and comprehensive training pathway for longitudinal data analyses from data discoverability through to advanced analytic methodologies.
 - Establish a complete pedagogical framework for longitudinal data analysis training;
 - Provide more ‘real-life’ examples of the whole research process using existing data;
 - Develop new training on data handling and data manipulation, identified as a major gap in this pathway, including the creation of ‘messy’ datasets based on existing data that can be used for training.
3. Improve training for staff supporting early career researchers.
 - Increase training provision for mid-career researchers/supervisors so they can effectively support early-career colleagues in the use of longitudinal data;

- Develop a mentoring scheme to provide early-career researchers with study-specific support.
4. Remove barriers to training access.
 - Deliver training across multiple formats such as interactive teaching resources and events offered both face-to-face and online;
 - Increase the provision of open-access training materials;
 - Reduce cost of in-person courses and concurrently provide more funding opportunities to attend training courses at all levels.

A coherent funding strategy is essential to maximise the impact of these recommendations.

Full report

Maddock, J., O’Neill, D., Rainsberry, M., Hardy, R. (2019) *A review of quantitative analytical training needs for users of longitudinal studies*. London: CLOSER.

About CLOSER

The UK is home to the world’s largest and longest-running longitudinal studies. CLOSER aims to maximise their use, value and impact both at home and abroad. Bringing together eight leading studies, the British Library and the UK Data Service, CLOSER works to stimulate interdisciplinary research, develop shared resources, provide training, and share expertise. In this way CLOSER is helping to build the body of knowledge on how life in the UK is changing – both across generations and in comparison to the rest of the world. CLOSER was funded by the Economic and Social Research Council (ESRC) and the Medical Research Council (MRC) from 2012-17, and by the ESRC from 2017 to present. Visit www.closer.ac.uk.

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¹ <https://esrc.ukri.org/files/news-events-and-publications/publications/longitudinal-studies-strategic-review-2017/>

² <https://www.closer.ac.uk/>