

A decade into the epidemic of social contact surveys relevant for the spread of close contact infections: A systematic review



Introduction

In this work, we undertake a systematic review to provide a comprehensive synthesis of social contact surveys that employed the contact diary method. Our primary focus is to highlight similarities and differences in terms of methodologies and results, identifying the relevant issues that need to be addressed in future studies.

Data and Methods

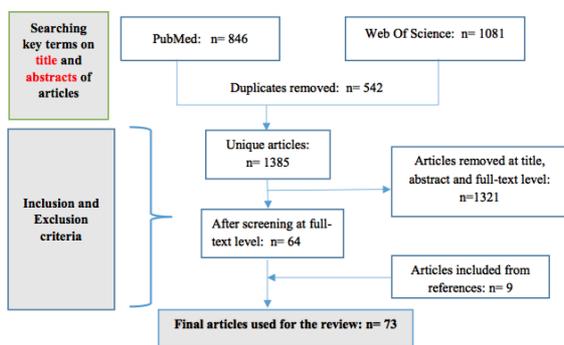


Figure 1: The PRISMA flowchart of the search strategy for the review.

Eligibility criteria:

- Focus on human face-to-face contacts
- Contacts relevant for the transmission of close-contact infections
- Contacts recorded using a diary (paper or electronic)

Results

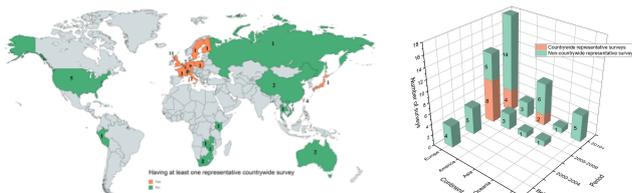


Figure 2: Map of social contact surveys (left). Number of surveys by continents and time period (right).

- We identified 62 surveys conducted in 24 countries
- Larger attention to developed countries, Europe in particular
- Africa studied only after 2010
- Number of surveys increased over time

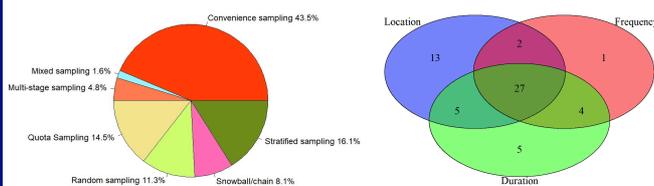


Figure 3: Sampling (left). Information about contacts collected (right).

- Most surveys used convenience sampling
- Only 27 surveys collected the most complete info on contacts

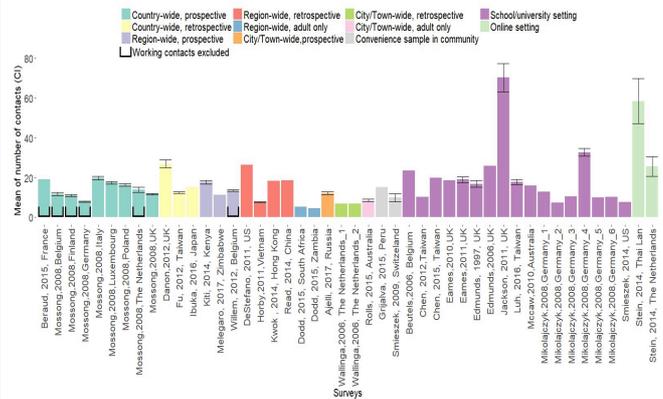


Figure 4: Average number of contacts and 95% CI (when available).

- 46 surveys report explicitly the number of contacts
- Large variability of the mean number of contacts across surveys

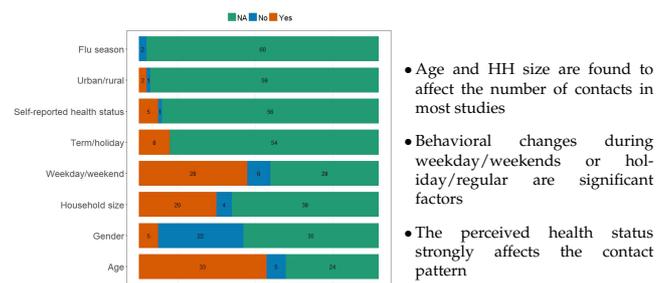


Figure 5: Determinants for the number of contacts.

- Age and HH size are found to affect the number of contacts in most studies
- Behavioral changes during weekday/weekends or holiday/regular are significant factors
- The perceived health status strongly affects the contact pattern

Conclusions

- Since the POLYMOD survey published in 2008, there has been an increasing trend in the number of social contact surveys
- Initially, social contact surveys have focused on developed countries, whereas studies in developing countries have gained attention over the last decade
- The large variety of how contact data was collected makes it difficult to compare results among surveys
- Future contact surveys should include a minimal set of questions about duration, location and frequency of contacts

Further improvements on these aspects in social contact surveys could help increase the quality of collected data, leading to more robust and reliable conclusions about contact patterns of individuals.

Acknowledgments

This work is part of projects that have received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program (grant agreement 682540 TransMID and 283955 DECIDE).

References

- [1] Mossong, J. et al. Social contacts and mixing patterns relevant to the spread of infectious diseases. *PLoS medicine* 5, e74 (2008).
- [2] Fu, Y.c., Wang, D.W., Chuang, J.H. Representative contact diaries for modeling the spread of infectious diseases in taiwan. *PLoS One* 7, e45113 (2012).
- [3] Danon, L., House, T. A., Read, J. M. & Keeling, M. J. Social encounter networks: collective properties and disease transmission. *Journal of The Royal Society Interface* rsif20120357 (2012).