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529

The role of Social Network Analysis (SNA) as an evaluation tool in complex One Health partnership networks

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KEYWORDS

One Health; Social Network Analysis; partnerships

OBJECTIVES

The One Health Poultry Hub (OHPH) is a partnership network of approximately 120 researchers from 27 institutions in 10 countries. It addresses complex issues of poultry intensification and public health, with a geographic focus on Bangladesh, India, Sri Lanka and Vietnam.

Social network analysis (SNA) was applied as an evaluation tool to investigate structural dimensions of collaborations between OHPH participants, as well as dynamic changes in the network across countries and research areas.

MATERIALS AND METHODS

SNA was performed using data from two online surveys, conducted a year apart. All OHPH participants were invited to respond. The surveys covered three periods: P0 (before March 2019), P1 (March 2019 – February 2020) and P2 (March 2020 – February 2021). In addition to individual connections, respondents specified their scientific discipline, primary role, gender, and age category.

RESULTS

The networks for all periods showed a high small-world index. Network connectedness increased during P1, in a distributed manner. However, during P2, connectedness decreased, and the network became more centralised; although connections between the UK and study countries increased, connections between study countries declined. Connectedness was higher for social scientists, mid and late career stage, and male partners.

CONCLUSIONS

During P1, face-to-face meetings enabled partners from all disciplines and countries to interact directly. This facilitated an increase in network connectedness and reduction in centralisation. P2 corresponded with onset of the Covid-19 pandemic. All communication activities were migrated to online platforms. Factors affecting participation included internet access and bandwidth; language challenges; and inhibitions due to perceived status or hierarchy (e.g. early career researchers).

In large partnership networks, an understanding of the relationships between partners is essential to shape activities plus engagement and impact strategies. SNA enabled us to evaluate these relationships, and how these evolve over time.