



14th IC BEN Congress on Noise as a Public Health Problem



Stakeholder involvement in research on health impact of environmental exposure

¹Sarah Benz, ¹Julia Kuhlmann, ²Peter van den Hazel, ³Miriam Weber, ⁴Sonja Jeram,
⁵Anna Sandionigi, ⁶Sammie Jansen, ⁷Gordana Ristovska, ⁸Maddie White, ⁹Achilleas
Psyllidis, ⁹Roos Teeuwen, ⁸Jenny Ahrens, ¹Dirk Schreckenber

¹ ZEUS GmbH, Centre for Applied Psychology, Environmental and Social Research, Hagen, Germany

² INCHES Network, Ellecom, The Netherlands

³ City of Utrecht (CoU), Utrecht, The Netherlands

⁴ National Institute of Public Health, Ljubljana, Slovenia

⁵ Quantia Consulting srl, Milano, Italy

⁶ National Institute for Public Health and the Environment (RIVM), the Netherlands

⁷ Institute of public health of Republic of North Macedonia, Skopje, Republic of North Macedonia

⁸ Department of Social Epidemiology, Bremen University, Bremen, Germany

⁹ TU Delft, Department of Sustainable Design Engineering, Delft, the Netherlands

Corresponding author's e-mail address: benz@zeusgmbh.de

ABSTRACT

The EU Horizon 2020 research project Equal-Life (Early Environmental quality and life-course mental health effects) studies the combined and interacting impact of physical, social, and internal (biomarkers) exposure on children's and adolescents' mental health and cognitive development from an exposome perspective. Data of European cohorts and school studies are used and enriched with variables of the physical exposure (e.g. noise, air pollution, grey and green space) and the social environment to estimate their effects on children's and adolescents' development and well-being and to identify the underlying mechanisms. A main part of Equal-Life is the involvement of stakeholders from policy, local practice, and science. Taking the research on noise impact combined with other exposure as an example, this contribution describes the different research steps of a study on the impact of environmental exposure and when and how stakeholders can be involved. A main objective of stakeholder involvement is to obtain input on how to formulate hypotheses, choose a study design and interpret the results in terms of recommendations for interventions. Further, stakeholders receive feedback on actions and interventions based on scientific knowledge about exposure-health associations and underlying mechanisms.

Keywords (3-6): Noise, exposome, physical exposure, social exposure, health, stakeholder involvement

INTRODUCTION

In the European exposome research project Equal-Life various physical and social environmental influences on children's and adolescent's mental health, wellbeing and cognitive development are studied¹. Of special interest are the impact of combinations of different physical and social exposures as well as the interplay with the potential mediators stress, sleep, and coping. Stakeholder involvement has a crucial role in the Equal-Life project. Several objectives are pursued with stakeholder involvement: 1) to consider practical experiences from various domains throughout the project in order to stay aware of the pressing issues in practical fields which might differ from the research focus. 2) to create a stakeholder network and built constant exchange with stakeholders to benefit from stakeholder's expertise. 3) to incorporate project's outcomes into a toolbox which support practitioners, policy-makers, etc. targeting to improve children's development and mental health by meeting their (the stakeholders') requirements. Therefore, participative and interactive approaches are adopted for constant stakeholder involvement².

Figure 1 shows a flow-chart with suggestions to integrate stakeholder involvement in different steps of the common research process.

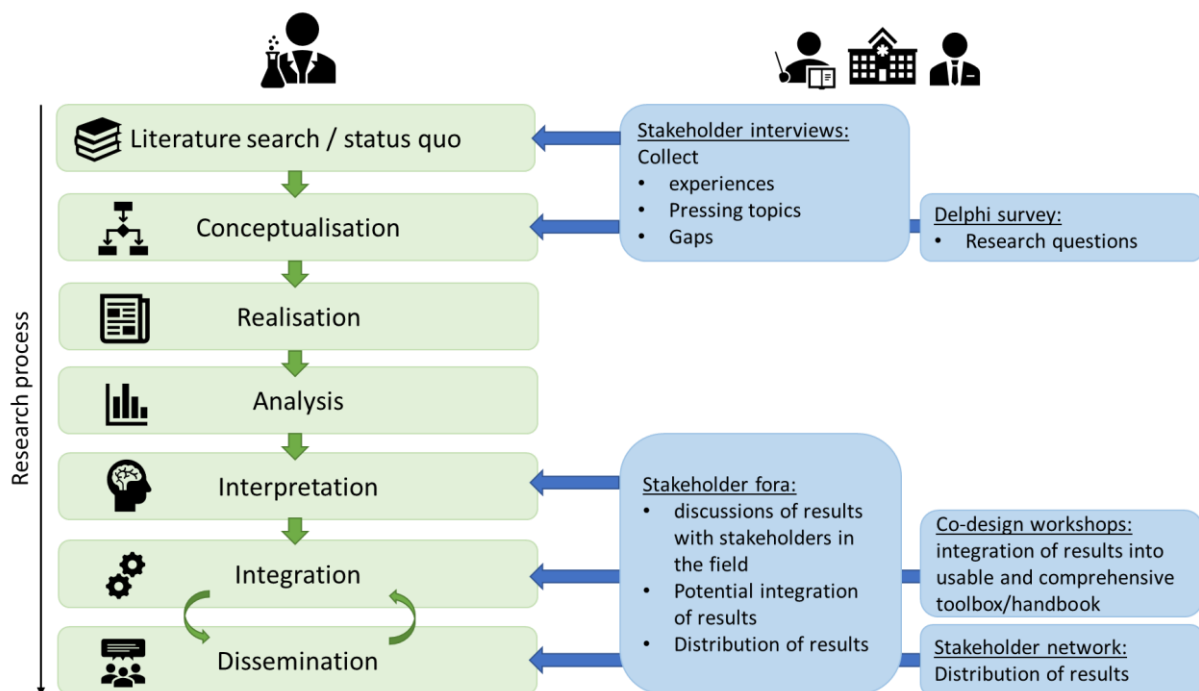


Figure 1: Steps in research process and options where stakeholder involvement was used in the Equal-Life project

Literature search/status quo: Interviews with stakeholders were carried out to collect information from various domains on their experiences with exposures affecting children's mental health, wellbeing and cognitive development³. Further, gaps in knowledge as well as practical gaps in national mental health plans were assessed.

Conceptualisation: A Delphi survey was conducted with stakeholders where pressing questions and issues were collected^{4,5}. In a next step, research questions collected in the project consortium were evaluated by stakeholders. This process was beneficial for refining and prioritizing research questions to be addressed in the project. Both information gathered in the stakeholder interviews as well as the Delphi survey can be used to compare the internal

focus of research with the proposed pressing topics from the perspectives of various practical domains.

Interpretation: Stakeholder fora are held to discuss projects results, specifically in the scope of the practical insights.

Integration: In the Equal-Life project, outcomes are meant to be integrated into a toolbox. Here, outcomes are considered as tools, such as new methods developed in the project, publications, results from analysis, but also results in terms of data. Therefore, co-design workshops are organised to support the process of integrating results into a usable and comprehensive toolbox. Stakeholder can assist in evaluating newly developed methods as well as evaluating the fit of results for stakeholders' daily work.

Dissemination: Stakeholders can be valuable distributors of project results. They can also serve as multipliers delivering results to interested institutions and reach policy advisors on different levels and in various domains (urban planning, municipalities, health and social care, public health, among others). On a higher level, the exchange with stakeholders can support the development of meaningful interventions and policies.

Acknowledgements

We want to thank all stakeholders that have contributed to a fruitful exchange with the Equal-Life project and are willing to share their valuable knowledge and experiences. This study is part of the EU project Equal-Life (Early Environmental quality and life-course mental health effects). Equal-Life has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 874724.

REFERENCES

1. van Kamp I, Persson Waye K, Kanninen K, Gulliver J, Bozzon A, Psyllidis A, Boshuizen H, Selander J, van den Hazel P, Brambilla M, Foraster M, Julvez J, Klatte M, Jeram S, Lercher P, Botteldooren D, Ristovska G, Kaprio J, Schreckenberg D, Hornikx M, Fels J, Weber M, Braat-Eggen E, Hartmann J, Clark C, Vrijkotte T, Brown L, Bolte G and Equal-Life team. Early environmental quality and life-course mental health effects: The Equal-Life project. *Environmental Epidemiology* 2021;6(1):e183. DOI: 10.1097/EE9.000000000000183.
2. van den Hazel P, Ristovska G, Sandionigi A, Weber M, Benz S. A Holistic Approach to Urban and Children's Mental Health. *European Journal of Public Health* 2022; 32. 10.1093/eurpub/ckac129.295.
3. Kuhlmann J, Benz S, Sandionigi A, Jeram S, Jansen S, van den Hazel P, Weber M, Ristovska G, White M, Schreckenberg D. Stakeholders' views about the environmental noise impact on children's and adolescents' health and cognitive development. *Proceedings of the 14th ICBEN Congress on Noise as a Public Health Problem*; June 18-22, 2023; Belgrade (Serbia).
4. Benz SL, Schreckenberg D, van den Hazel P, Weber M, Jansen S, Ristovska G, Arat A, White M, Spiroski I, van Kamp I. Involving stakeholders in noise research projects: Towards a holistic approach for interaction between scientific and practical considerations. *Proceedings of the ICA 2022*; October 24-28, 2022; Gyeongju, South Korea.
5. Ristovska G, van den Hazel P, Weber M, Jansen S, Benz S, White M, Arat A, Spiroski I, Schreckenberg D, van Kamp I. Stakeholders' involvement in identification of research and policy needs for children's mental health. *European Journal of Public Health* 2021; 31. 10.1093/eurpub/ckab164.314.