

Methodological considerations, planning and performing of a systematic review with meta-analysis in Global Health

The systematic reviews with meta-analysis training was a two and half days event, between 23.09.2022 and 25.09.2022, that was held in-person at the Martin-Luther-University, Institute of Medical Epidemiology, Biometrics and Informatics (IMEBI) in Halle (Saale), Saxony-Anhalt. The original idea for this event developed at the GLOHRA Day 2021, in Berlin, where many of the GLOHRA funded projects reported that the first step in their realization was conducting a systematic review, and their struggles with the methodological aspects. Thus, Ljupcho Efremov, MD, MSc and Dwi Gayatri, PhD applied for a GLOHRA funded grant to draw closer the methodological intricacies of conducting a systematic review and to help in setting up the initial groundwork for early career researchers in Global Health. There was a great interest in the workshop, with more than 120 applicants from 40 different countries. Finally, 30 applicants were selected to participate on-site in Halle (Saale).

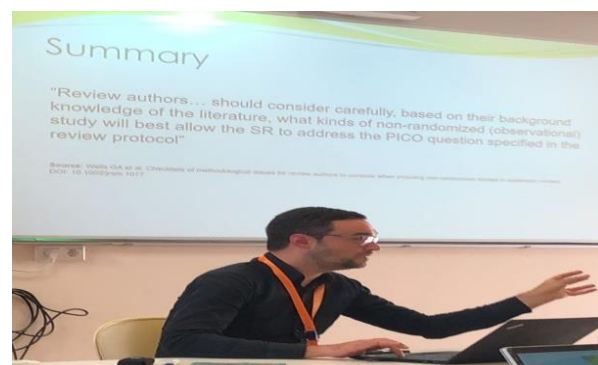
The aims of the workshop were multifaceted. From one side, we wanted to include both theoretical and practical opportunities for the participants to gain knowledge. During the first day of the training event, the steps for conducting systematic review of quantitative studies were covered. The second day was dedicated, in one part, to preparing a systematic review of qualitative studies, and in another part, the focus was on specific subtopics, such as systematic reviews on questions stemming from the bioethics field and the specificities of conducting a Cochrane review. The wide breadth of topics covered was necessary to provide participants with a comprehensive overview of the different methodologies available.

The lectures on the first day were delivered by Dr. Prakash Shakya, international expert in Global Health, who previously organized several workshops on systematic reviews. Dr. Shakya gave the participants a general introduction to the topic, together with explanations on how to formulate a good research question, register their study protocol, develop a search string for citation databases, on the process of selecting studies, assessing the risk of bias, how to use the RevMan software for meta-analyses, how to interpret forest plots, and the importance of conducting subgroup and sensitivity analyses. The last lecture on the first day was given by Ljupcho Efremov, MD, MSc, who covered the subtopic of conducting a systematic review by using observational studies. The day was concluded with a guided tour of the historical center of Halle (Saale) for all participants.

During the second day, the focus was given to performing systematic reviews with qualitative studies. Dr. Amand Führer shared his expertise on the topic, covering the methodological premises and practical approaches. Dr. Führer had selected two qualitative articles that the participants had to



Picture 1. Dr. Prakash Shakya teaching on the first day



Picture 2. Ljupcho Efremov on doing systematic reviews with observational studies

evaluate critically using a set of pre-defined criteria. Using an online platform, the results from the evaluation could be shared with the whole cohort of participants and discussed in detail.



Picture 3. Dr. Amand Führer teaching on using qualitative studies for systematic reviews

During the evening session, Dr. Marie Nicolini joined via Zoom from Washington D.C. to deliver her lecture on the topic „Systematic reviews in Bioethics: Strengths and Pitfalls“. With her lecture, we wanted to make the participants aware that specific research questions, especially in fields neighboring or collaborating with medicine, need careful consideration of the previously explained methodology.

The last part of the evening session was covered by Dr. Julia Schumann, an expert in conducting Cochrane reviews. She delved into the complex procedure of securing a topic from the Cochrane Group and which are the specific features of this type of reviews. The day concluded with a networking event, where participants from different fields could share their perspectives on global health.



Picture 4. Dr. Julia Schumann teaching on how to conduct a Cochrane review

The third day was envisaged as a practical day. The participants started developing their research protocol, by following all current guidelines, and which can be later registered online in the appropriate database. They were given an example from a previous successful registration and guided by the facilitators present: Dr. Prakash Shakya, Dr. Amand Führer, Dwi Gayatri, PhD and Ljupcho Efremov, MD, MSc. Several participants volunteered to present their protocol to the

rest of the group. Their protocols were critically analyzed and suggestion on further improvements and corrections were given. The day ended with a networking lunch event, during which the participants were asked to submit evaluations forms whether the training event met their expectations.



Picture 5. Group picture with all participants at the training event

The results of the evaluation were overwhelmingly positive, with participants citing that they expanded their knowledge on systematic reviews greatly, and were satisfied with how the material was presented. In addition, they were pleased with the ample networking opportunities the event provided, so that they could connect with other early career researcher around the world and share experiences and expertise.