Portuguese Journal of Public Health

Letter

Port J Public Health 2023;41:230–234
DOI: 10.1159/000533973

Received: March 3, 2023
Accepted: August 21, 2023
Published online: December 5, 2023

Training on the Impact of Climate Change on Public Health: Reflections and Lessons Learnt

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Keywords
Climate change · Public health · Training programs · Knowledge translation

Formação sobre o impacto das alterações climáticas na saúde pública: reflexões e lições aprendidas

Palavras Chave
Alterações climáticas · Saúde pública · Programas de formação · Translação de conhecimento

Introduction

Climate change is a major concern for public health and is considered the most important environmental threat of the 21st century [1]. Currently, countries are still dealing with the health, social, and economic impacts of the COVID-19 pandemic which have potential implications for global development pathways and how the risks from climate change are managed [2]. Simultaneously, Russia's invasion of Ukraine in 2022 poses additional challenges, such as an energy crisis or the limited availability of some commodities, affecting not only the European countries but also the entire world [3]. Unfortunately, this context brings more challenges to put in place actions intending to mitigate and adapt to climate change, worsening the impacts on human health and well-being and exacerbating the vulnerability of the world's populations [4]. Indeed, climate change is responsible for the onset or worsening of several risk factors for human health and consequently increasing the incidence and severity of several health outcomes, e.g., heat-related illness and death, exacerbations of asthma and other respiratory diseases, mental health effects, modification of the pattern of vector-borne and foodborne diseases, undernutrition [5]. In Europe, between 1980 and 2020, in the 32 EEA member countries (EEA-32) and based on data from two separate sources (NatCatSERVICE and CATDAT), fatalities associated with climate change amounted between 85,000 and 145,000 [6].

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Considering that the health of the environment is a critical foundation for the health and well-being of humans, animals, and plants, it is widely recognized the importance of a holistic and integrative approach such as One Health is needed to face these challenges [7]. Integrating the One Health approach offers collaborative efforts to gather scientific disciplines, policy-making, and local knowledge by engaging non-academic stakeholders and academic domains to act together at different levels and address health problems related to climate change [8].

Thus, the promotion of activities that allow the early identification of risk factors, their assessment, and the adoption of measures to mitigate the impacts on the health of the population and adapt the response and training of health services is fundamental. In this regard, it is essential to develop research on the interactions between climate change and health that allows for a more accurate risk assessment and appropriate risk communication and, also, to develop training on these issues to guarantee that the best actions on mitigation and adaptation are put in place at local, national, and international levels [9]. In this scope and with the same goals, the European Commission has recently funded several research projects on the climate-health nexus with a total of 60 million euros. Additional calls are now open on the same topic [10].

Assessment of the Training Needs

Considering the context of climate change and its impact on human health and recognizing the need for a coordinated and fast transformation of the health sector, efforts are being developed worldwide by academic institutions to promote education and training for health professionals by including climate change and environmental challenges in curricula. The Global Consortium on Climate and Health Education hosted by Columbia University's Mailman School of Public Health considered that "*the health sector must be equipped to recognize, respond, and prepare for ongoing and future climate-related impacts on patients, communities, and especially, vulnerable patients*" [11]. In a survey conducted in 2019, with current employers who are likely to need candidates with training in both public health and climate change as participants, 91.7% (78/87) of respondents believe that the need for public health professionals with training in climate change may grow in the next 5–10 years [12]. In Europe, the Agency for Public Health Education Accreditation (APHEA) was established as a criterion for accreditation of educational programs: the demonstration of "*appropriate responsiveness to emerging scientific evidence and developments in the public health academic and professional spheres and to changes in the environment and health needs and demands of populations*" [13]. The Association of Schools of Public Health in the European Region (ASPHER) developed a survey on the implementation of climate and health education in European public health schools, where it was demonstrated that climate and health education were unable to meet the actual needs of the public health field [14]. Following this survey and considering the importance of promoting the inclusion of climate change-related topics in the education and training of health professionals, ASPHER published a set of competencies for public health professionals in Europe, considering four domains: knowledge and analytical skills, communication and advocacy, collaboration and partnerships, and policy [15] (Fig. 1). A joint statement by the European Union Health Policy Platform's thematic network "Climate action through public health education and training," coordinated by ASPHER and with the participation of NOVA National School of Public Health of NOVA University of Lisbon (ENSP-NOVA), also claimed attention to the fact that the curricula for undergraduate and postgraduate programs and continuous professional development must be updated [16]. Other important developments occurred in 2022, namely the expression of support made by the G7 Health Ministers of the National Public Health Institutes (NPHIs) and the International Association of National Public Health Institutes (IANPHI) priorities to achieve climate-resilient and sustainable, climate-neutral health systems. In addition, they also manifested their support to the Roadmap for Action on Health and Climate Change developed by the IANPHI, where one of the initiatives listed is to enhance capacity, competence, and training through peer-to-peer support and knowledge sharing between NPHIs [17, 18].

Action Developed

The ENSP-NOVA, as a reference institution in public health education and research, recognizes that it can have a relevant role in preparing professionals in the field of climate change and the impact on public health through research and training for awareness of climate change effects on human health, promoting knowledge translation into actions on the mitigation and adaptation to climate change.

Fig. 1. Syllabus for training climate change and public health from ENSP-NOVA and the interconnection with ASPHER Climate and Health Competencies for Public Health Professionals in Europe.

Accordingly, training was prepared and developed in January 2023 focused on climate change and its impact on public health. The training syllabus was defined based on the objectives and competencies defined by ASPHER [15], including ten lectures of 3 h each dedicated to the major health outcomes related to climate change, with an emphasis on mitigation and adaptation, research needs, and interventions in public health, aiming to support multi-sectorial policy actions intending to recognize co-benefits of these to human and animal health and environment. Figure 1 describes the interconnection between the syllabus of the training on climate change and public health from ENSP-NOVA with ASPHER Climate and Health Competencies for Public Health Professionals in Europe.

The lectures were organized in two major parts: the first part, where the topics were addressed and presented (slides, short videos, international data hubs), setting the scene for the second part, where an interactive working group was dynamized, promoting the application of the contents approached and detailed in the first part. This interactive work included the reading, discussion, and presentation of important aspects of scientific papers focused on the topics being discussed in each lecture and provided by the lecturers. Trigger questions were presented to highlight the most important information to be retrieved from scientific articles, supporting the discussion. This approach provided more interaction between lecturers and participants, stimulated the extension of the knowledge of the students through active learning strategies, and promoted students' building capacity to analyse the data and produce their own rationale on the subjects discussed. Each topic was presented with a multidisciplinary perspective and emphasizing the need of collaborative work and integrated approaches to be able to tackle climate change mitigation and adaptation goals. Additionally, a lecture fully dedicated to the one health approach was included, where the main topics interconnected with climate change were presented, i.e., impact on food systems, biodiversity loss, antimicrobial resistance, zoonotic diseases. The students also have an evaluation moment that comprised, developing an individual work on a subject discussed in the lectures and a formal presentation of that work to colleagues and lecturers. Considering

the required workload to complete the training and following the European Credit Transfer System (ECTS) framework, this training represents 4 ECTS credits.

Due to the multidisciplinary nature of the addressed topics, the lecturers had different academic backgrounds and professional expertise, from human health, animal health, environment, geography, climate change adaptation, and epidemiology to risk assessment. Regarding the students enrolled in the course, and similarly to the lecturers, they were from different academic backgrounds and working in different professional settings. The group was composed by twelve participants integrating researchers and professionals in environmental health, medical doctors, nurses, engineers, and programmers, who were working in public health services, research centres, municipality services, food companies, and private health services.

Main Benefits of the Training

By the end of the first edition of this training, several successes and benefits were identified. From a lecturer's perspective, this was an opportunity for developing an articulated training between the different topics, providing in the end competencies that allowed the participants to better understand the climate change phenomena and the related implications to human health. In addition, the participants were capacitated to define and develop climate change mitigation and adaptation interventions in their fields of work. Furthermore, the training allowed us to understand that there is a clear interest in this topic from a wide range of professionals, from scientists to technicians, working in different areas in the public and private sectors. From the students' perspective, the main benefits identified were the diverse backgrounds of lecturers and students, the lecture structure (theoretical contents and interactive working group), and the broad perspective of climate change challenges provided during the training. The students also highlighted the difficulties of having all the ten lectures in only one month and this aspect will probably trigger changes in the timeline of future editions of this training. All the aspects highlighted by the lecturers and the students concur with the identification and development of policies that will bring co-benefits to human and animal health and the environment, being the drivers for the next years [19]. However, we need to act now and promote the mainstream of health in all policies, strategies, and programs, being closely related to the One Health approach.

Conclusions

Overall, concerning the interest from different audiences in the training, the feedback from lecturers and students, and the impact that is foreseen in mainstreaming the course topic, future editions of the course should be held in the scope of the ENSP-NOVA formative program. It is very much hoped that the experience and lessons learnt and highlighted here will be of value when preparing similar training programs, allowing continuous improvement to contribute to the progress on mitigation and adaptation measures regarding climate change at the local and global level through a one health approach.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Funding Sources

No funding was received.

Author Contributions

All authors prepared the manuscript and approved the final version of the manuscript.

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