

Physical Activity and Sport Competitions Under Severe Air Pollution Conditions

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Study/Objective: This study aims to understand the relationships between physical activity and air pollution, and recommend standards for canceling or postponing outdoor physical activities and sport competitions during severe air pollution events.

Background: Exposure to ambient air pollution may cause health problems and can lead to development of pulmonary diseases (such as COPD and asthma), cardiovascular diseases and even diabetes. Physical activity under air pollution conditions can cause a higher exposure to pollutants and therefore, may cause damage to individuals, especially to young children, but even to professional athletes. Guidelines for developing recommended intervention during severe air pollution conditions are required.

Methods: We searched for studies and publications (published between February 2002 and March 2016) that focused on the association between ambient air pollution and different levels of physical activity. We looked for studies regarding athletes, the public population, children and older adults. Based on our findings, we developed recommended threshold levels.

Results: Physical activity under conditions of air pollution may cause short-term and long-term health damage to the public and specifically to athletes. It decreases lung function, may increase the immune system activity and may diminish exercise performance. However, specific thresholds for cancelling outdoor sports events were not developed. We therefore suggest the following threshold values, per age group:

Conclusion: It is recommended both for the public and athletes, to completely avoid any physical activity under severe air pollution conditions, including professional and semi-professional sport competitions. In this paper we suggest recommended air pollution levels for avoiding physical activity and standards for cancelling professional and semi-professional games accordingly.

Age Group	Suggested PM _{2.5} threshold value for canceling adult outdoor sport activities
Adults	1300 µg/m ³ per 24 hours
Older youth (ages 16-18)	1300 µg/m ³ per 24 hours
Younger youth (ages 14-16)	650 µg/m ³ per 24 hours
Children (ages below 14)	300 µg/m ³ per 24 hours

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Rapid Urbanization is Linked to Flood Lethality in the Small Island Developing States (SIDS): A Modeling Study

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Study/Objective: We sought to investigate the risk factors for flood lethality in the SIDS in the last 30 years (1985–2014).

Background: The low-lying Small Island Developing States (SIDS) are at a constant risk of floods. They are also acutely affected by climate change, in particular from rising sea levels, temperature, and rainfall increases, which further increase flood risk. Yet, no quantitative studies have addressed how development and urbanization, upstream distal factors, are linked to mortality from floods.

Methods: In this ecological study, flood lethality was defined by any flood deaths versus no deaths. Plausible risk factors for flood lethality were explored using a literature search. World Bank Development Indicators were used as proxies for the risk factors and EMDAT data for disaster-related variables. A multivariate analysis was conducted using logistic regression with a quasi-binomial distribution, removal of multicollinear variables, and backward elimination. Robustness was checked through a subset analysis on data from last decade, excluding Haiti.

Results: Significant positive associations were found among flood lethality, urban population (odds ratio [OR] 1.023; 95% CI 1.007–1.040), and urban population growth (OR, 1.225; 95% CI 1.024–1.476). The effect of urban population growth was 10 times that of the total urban population (coefficients 0.202 and 0.023, respectively). Robustness checks revealed similar coefficients and directions of associations.

Conclusion: More urbanization and rapid urbanization in particular were connected to a higher likelihood of lethal floods in the SIDS. Future studies should investigate poor and unplanned urbanization as mediators of these associations. Our study provides initial evidence on the collateral human impacts of current human development strategies in the SIDS accumulated during the last three decades.

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The One Health Approach for Communicating Risk with a Community during the Crisis of the Rift Valley Fever Outbreak in East Africa

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Study/Objective: In the present study, we aimed to identify the risk factors practiced by local communities where Rift Valley Fever (RVF) outbreaks occur, and characterize the source of information that shaped the awareness during the 2007 RVF outbreak crisis.

Background: Rift Valley fever virus (RVFV) causes outbreaks in Africa and the Arabian Peninsula with catastrophic consequences. It results in severe disease in humans with high case fatality, as well

as abortion storms and 100% mortality in newborn livestock, resulting in trade-bans which devastates the local and national economy. RVF is transmitted by direct contact with infected livestock and through mosquito bites, and has potential for global expansion. RVF has the “One Health” dimension where humans, animals, and the environment interact in spreading the disease. This needs special strategy to communicate the risk of RVF during outbreaks.

Methods: A cross-sectional community-based study was conducted in Sudan in 2013. A special One Health questionnaire was developed to compile data from 235 households. Face-to-face interviews were conducted in an area that was exposed to the RVF outbreak.

Results: The community practiced risk factors such as handling sick animals, helping animals to deliver without protection measures, was only partially using mosquito bed nets, and usually not impregnated. Information about the RVF outbreak was mainly gained through social networks, while the health system or veterinarians were not used as an information source. This increases the possibility of rumors, wrong information and consequently disease dispersal.

Conclusion: We found that formulating the One Health approach team from different disciplines would be the best strategy to communicate the countermeasures to control RVF zoonotic outbreak. This is particularly useful when resources are limited and resilience is needed. The communication should consider the social cultural practices of the community, and highlight the different dimensions of zoonotic transmission to avoid spread of further RVF outbreak.

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Innovative Technological Approaches for Community Resilience

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Study/Objective: This proposal is a practical, solution-oriented research which, in a way, challenges the conventional public health surveillance systems – which require real-time or near real-time, population-based, statistical alarms to alert to unusual activity – through innovative ongoing surveillance that will incorporate geospatial assessment as well as behavioral and self-reported information.

Background: The Conjoint Community Resilience Assessment Measure (CCRAM) was developed by a multidisciplinary group of Israeli experts in order to offer a standard tool that will provide reliable information that can be useful when attempting to maintain or enhance community resilience.

Methods: Frequent and broadly distributed data collection using the CCRAM, on a cellular device, will be utilized for establishing and continuously supporting a society that is more resilient and literate in the field of disaster risk reduction. Smartphones and Internet cloud services will be used for data collection and

management. The research program comprises of both System development of the mobile and cloud service and Experimental operation of the developed system, with Information and Communication Technology (ICT) trainings for community participants and health care providers.

Results: One of the added values of the project is to develop the next methodological model of health monitoring, offering a strong interactive network which crosses cultural and societal differences, geographies, and generations.

Conclusion: The potential of this research is not only to produce innovative research outcomes involving the improvement or optimization of services utilizing ICT, but also to promote research knowledge and idea exchange regarding social issues and challenges in the field of emergency preparedness and response.

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Barriers and Opportunities for Early Detection of Breast Cancer in Gaza

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Study/Objective: Assessment of the landscape of barriers and opportunities of early detection of breast cancer, including women’s and healthcare providers’ awareness, knowledge, attitude, practice and access to breast health care in Gaza.

Background: Breast cancer is the most common malignancy and leading cause of cancer mortality among females in Gaza. Most cases are diagnosed at late stages. Survival rates are persistently low in contrast to improved rates worldwide.

Methods: In May and June 2014, using convenience and representative sampling, 100 healthcare providers completed surveys on knowledge of breast cancer, attitudes and practices. Structured interviews conducted for 100 women, 30 years and older across all districts and socio-economic backgrounds. Women were interviewed for knowledge of breast cancer, self-exam, attitude and practice when a breast problem encountered, access, and barriers. Data was analyzed using excel to find frequency distributions.

Results: Healthcare providers surveys: Only 15% offer breast exam to their patients, 13% believe mammography can cause cancer, 48% do not know that radiotherapy is not available in Gaza, and 4% believe breast cancer is contagious. About 59% of healthcare providers believe breast cancer is a fatal disease. Almost half of healthcare providers do not get opportunities to attend national or international medical conferences addressing breast cancer; and only 8% agreed for the need for accreditation with quality assurance program. Only 25% of surveyed women reported practice of self-examination, 87% had never had a mammogram or had been offered a breast examination, however 80% agreed to seeking a breast work-up when needed.

Conclusion: Knowledge gaps in breast health awareness and practice exist among healthcare providers and women in Gaza, with several identified opportunities for improvement. Most surveyed