

PRECIPITATION AND VARIOUS DEGREES OF HEALTH CONSEQUENCES IN TAIWAN (1994–2008)

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Background and Aims: Precipitation intensities appeared to have increased over the recent decades. Heavier precipitations are reported to result in direct casualties or to affect mental health indirectly. Yet, only limited studies have established the quantitative relationships between levels of precipitation and various types of public health consequences in a subtropical region like Taiwan.

Methods: Data of the daily accumulated precipitation, temperature and daily registration of cause-of-death were integrated from 352 townships between 1994 and 2008 in Taiwan. The relationship between precipitation and reporting cause-of-death on accidental deaths, excluding those from earthquake events (ICD-9: E800–E949) and suicidal death (ICD-9: E950–E959), were analyzed with Spearman correlation coefficient, Poisson regression and further mapped by geographical information system (GIS).

Results: The preliminary findings indicated a positive correlation between precipitation level and various public health consequences. Every 30mm increase of precipitation was significantly associated with an elevated risk of accidental death (RR= 1.022, 1.015–1.030) and suicidal death (RR= 1.025, 1.007–1.026) after adjusted for temperature, season and location of death registry. Results also indicated that precipitation of the very day was the significant variable, compared to that of any previous days. Risk map was constructed according to the estimated level.

Conclusions: A quantitative assessment was successfully conducted between the estimated level of precipitation and the registered deaths due to accidents and suicides. Future studies may take into account the availability of medical resources or sanitary infrastructures before concluding the exact association between precipitation intensity and various causes of death.