

The Effect of Heatwaves on Hospitalization in Eight Ecological Regions in Vietnam

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INTRODUCTION

Heatwaves can have significant health consequences resulting in increased mortality and morbidity. However, there have been limited studies on temperature-hospitalisation relationships, especially national-scale studies in Vietnam.

OBJECTIVE

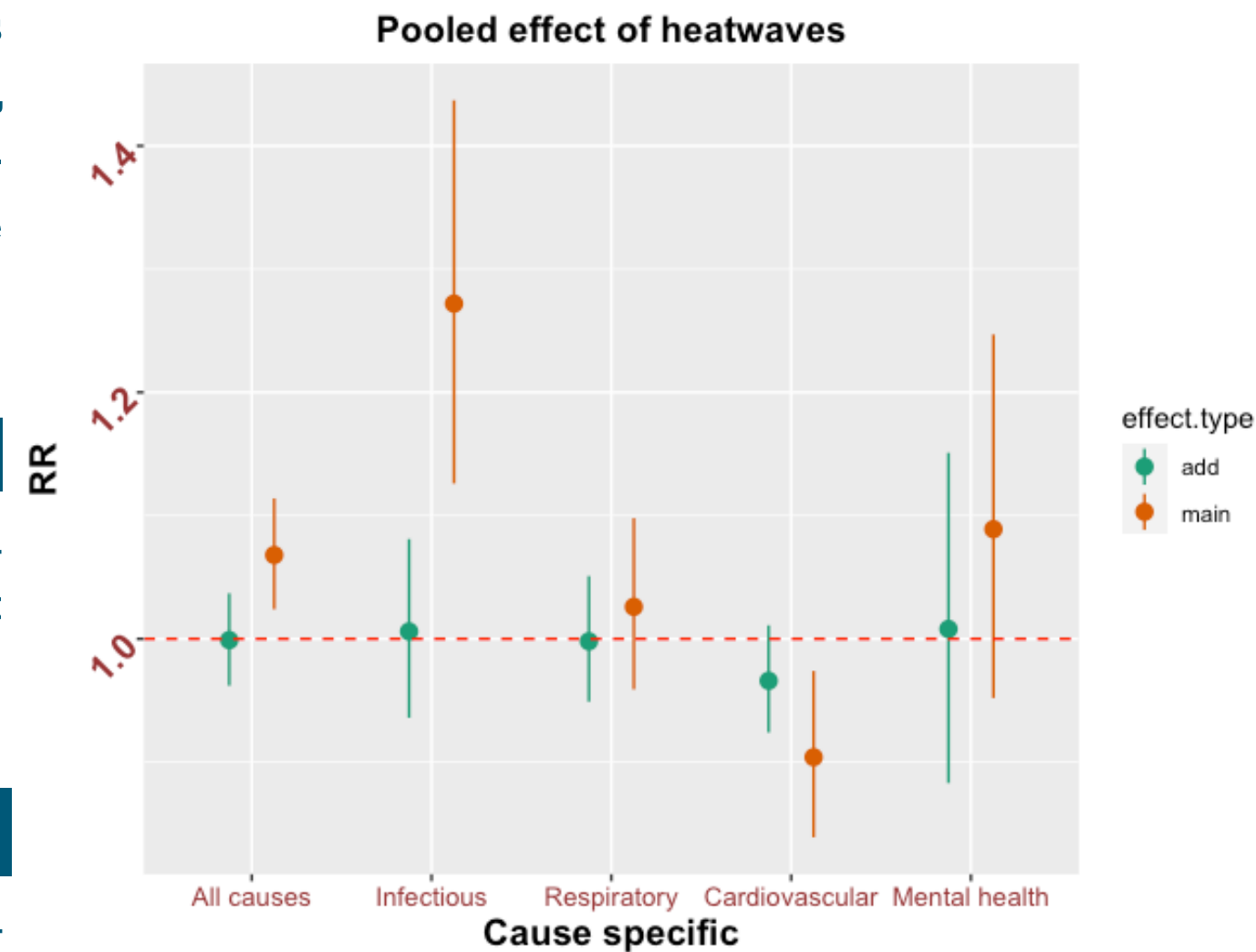
This study investigated the effect of heatwaves on hospital admissions in eight provinces representing eight ecological regions in Vietnam

METHODS & MATERIALS

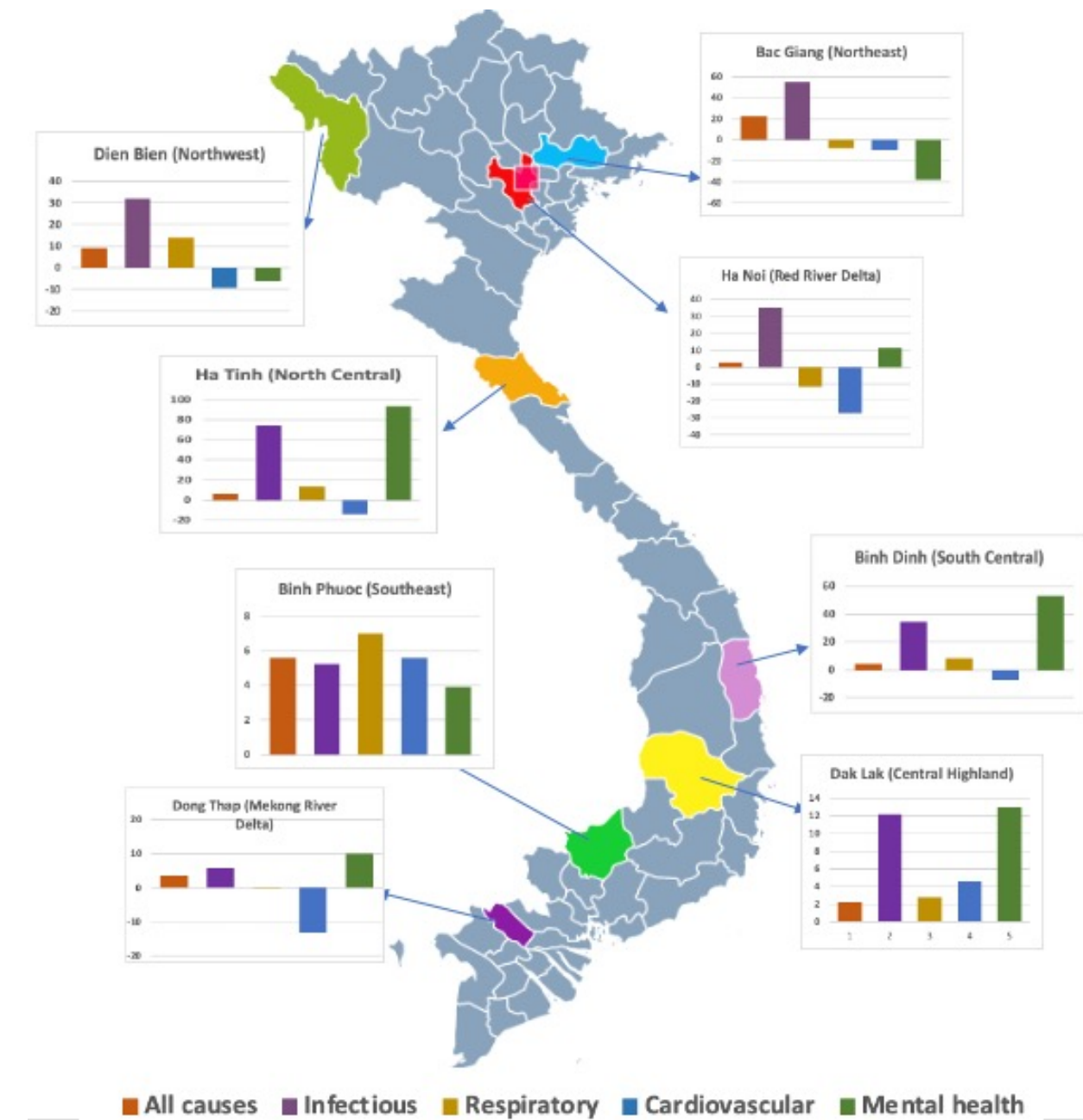
Daily hospital admissions and meteorological data in each province were obtained for the same period. A time-series analysis was applied using Distributed Lag Linear Models to examine the association between heatwaves (main and added effect) and the risk of hospitalization.

Province	Study period	Daily mean Hosp	Average Temp (°C)	Number of heatwaves
Dien Bien (Northwest)	2005 - 2015	51.4	22.1	153
Bac Giang (Northeast)	2008 - 2015	97.2	24.4	924
Ha Noi (Red River Delta)	2008 - 2013	47.4	24.2	656
Ha Tinh (North Central)	2017 - 2020	76.1	25.3	30
Binh Dinh (South Central)	2008 - 2012	140.0	26.3	45
Dak Lak (Central Highland)	2017 - 2020	133.1	24.0	36
Binh Phuoc (Southeast)	2008 - 2014	74	28.3	57
Dong Thap (Mekong River Delta)	2002 - 2013	62.1	27.3	71

RESULTS



The country-level pooled main effects (RR, [95%CI]) for all-cause admission (RR = 1.07, [1.02-1.11]) were greater than the added effects (RR = 1, [0.96-1.04]). The main effect peaked at lag0-3 and was highest for infectious diseases (1.27, [1.13-1.44]). The main effect of heatwaves on all-cause admission varied across regions, was highest in the Northeast (1.23 [1.18-1.28]), followed by the Northwest (1.09, [1.05-1.13]), the Southeast (1.06, [1.02-1.1]), and Mekong River Delta (RR=1.04, [1.02-1.05]). In other regions, the effect of heatwaves was not significant.



The Y-Axis of figures is the percentage change in hospitalization risk associated with main effects of heatwaves (97th percentile with ≥ 2 days)

CONCLUSION

Heatwaves are associated with increased hospitalization risk, especially infectious diseases. Also, the effects of heatwaves were mainly driven by high temperatures. It is important to identify heat-vulnerable regions and local-specific adaptation strategies to protect residents from extreme temperature conditions.

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