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2014 FIFA World Cup associated with higher number of heart attacks in Germany

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The 2014 FIFA (International Federation of Association Football) World Cup was associated with a higher number of hospital admissions for heart attacks in Germany compared to the same time period—12th June to 13th July—in the previous and subsequent years (2013 and 2015), according to a study published in *Scientific Reports*. The World Cup was not associated with higher rates of death from heart attacks in hospital, except for the final match between Germany and Argentina.

Karsten Keller and colleagues compared admissions and in-hospital mortality from heart attacks—or myocardial infarction (MI) – across four time periods: during the World Cup from 12th June to 13th July 2014 and during three periods without large football events, from 12th June to 13th July 2013, from 12th June to 13th July 2015 and between 14th July and 14th August 2014. Although the authors detected no differences in total numbers of patients with MI in hospital during the months of June and July for the years 2011 to 2015, the number of hospitalizations for MI was highest in 2014.

The authors found that there were 18,479 hospital admissions due to MI in Germany during the 2014 World Cup, which was 3.7% higher than during the same 31-day period in 2015 (17,794 admissions), 2.1% higher than during the same 31-day period in 2013 (18,089) and 5.4% higher than between 14th July and 14th August 2014 (17,482 admissions). There were no differences between these time periods in in-hospital mortality or patient characteristics such as cardiovascular risk factors or comorbidities.

Games that involved the German national team did not seem to have an effect on admissions or mortality. However, the highest in-hospital mortality of the World Cup period was observed on the day of the final between Germany and Argentina, which finished 1:0 after extra time. The authors detected no differences in types or rates of treatment for MI between the match days of the German national team compared to other days of the World Cup period.

The findings may suggest that the increased mental stress of large, popular sporting events like the World Cup may affect the occurrence of cardiovascular events. The authors suggest that the research could be used to inform ways of planning hospital capacities at times of potential increased stress.

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More information: Karsten Keller et al, Total numbers and in-hospital mortality of patients with myocardial infarction in Germany during the FIFA soccer world cup 2014, *Scientific Reports* (2021). DOI: 10.1038/s41598-021-90582-z

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