P.04 - UNDER THE WEATHER - THE INFLUENCE OF TEMPERATURE AND HUMIDITY IN PSYCHIATRIC EMERGENCY ROOM OBSERVATIONS

Sérgio M. Martinho¹, Ana Mafalda Carvalheiro¹, Mário Simões¹

1 - Psychiatry and Mental Health Department, Leiria Hospital Centre, Leiria, Portugal

Introduction

The relationship between meteorology and disease is not new.¹ In fact, meteorological factors have been associated with several medical conditions, such as myocardial infarction² or stroke³. The same appears to occur with psychiatric illness. There are known seasonal patterns in psychiatry, such as an increased number of suicides during Spring⁴, an increased number of maniac episodes in Spring and Summer⁵, and worsening of depression in Spring and Winter⁶. More specifically, it has been noted an inverse relationship between relative humidity and admissions due to affective illness⁷. Moreover, an association between hospitalization due to bipolar disorder and higher numbers for maximum temperature and solar radiation⁸.

Purpose

We aim to determine the influence of temperature as well as humidity in the number of psychiatric observations in the emergency room (ER) of a general hospital.

Methods

We collected the daily number of patients who entered the ER referred directly to observation by the psychiatry team, between 1/1/2017 and 31/12/2018, at the Leiria Hospital Centre, Portugal. Similarly, we gathered the values of daily average temperature and humidity, for the same period, from an amateur weather station located around 4 km from the hospital. The average daily temperature and humidity were obtained by calculating the mean of all measured values of each day. A multiple linear regression was computed to predict the number of patients observed based on daily average temperature and humidity.

Results

Simple linear regression with average daily temperature as independent variable and with number of patients observed as dependant variable

Results

Simple linear regression with average daily humidity as independent variable and with number of patients observed as dependant variable

In a **multiple linear regression** analysis, a significant regression equation was found ($p < .001$), with an $R^2 = 0.02$. Daily average temperature was significant predictor of the number of patients referred directly to the psychiatric ER ($B = .04$; 95%CI [.01; .07]; $p = .004$), whereas daily average humidity was not ($B = -6.64 \cdot 10^{-10}$; 95%CI $[-1.58 \cdot 10^{-9}; 2.49 \cdot 10^{-10}]$; $p = .154$).

Conclusions

Although explaining only 2% of variance, results suggest that temperature may play a role in resorting to the psychiatric ER. Further studies are necessary to better understand the effect of weather in psychiatric illness.

References:

1. Bulbena A, Pailhez G, Aceña R, et al. Panic anxiety, under the weather? Int J Biometeorol. 2005;49(4):238-243. doi:10.1007/s00484-004-0236-0
2. Magalhães R, Silva MC, Correia M, Bailey T. Are stroke occurrence and outcome related to weather parameters? Results from a population-based study in Northern Portugal. Cerebrovasc Dis. 2011;32(6):542-551. doi:10.1159/000331473
3. Bhaskaran K, Hajat S, Haines A, Herrett E, Wilkinson P, Smeeth L. Short term effects of temperature on risk of myocardial infarction in England and Wales: Time series regression analysis of the Myocardial Ischaemia National Audit Project (MINAP) registry. BMJ. 2010;341(7768):338. doi:10.1136/bmj.c3823
4. Woo JM, Okusaga O, Postolache TT. Seasonality of suicidal behavior. Int J Environ Res Public Health. 2012;9(2):531-547. doi:10.3390/ijerph9020531
5. Volpe FM, Del Porto JA. Seasonality of admissions for mania in a psychiatric hospital of Belo Horizonte, Brazil. J Affect Disord. 2006;94(1-3):243-248. doi:10.1016/j.jad.2006.03.025
6. Blacker CVR, Thomas JM, Thompson C. Seasonality prevalence and incidence of depressive disorder in a general practice sample: Identifying differences in timing by caseness. J Affect Disord. 1997;43(1):41-52. doi:10.1016/S0165-0327(96)00102-4
7. Salib E, Sharp N. Relative humidity and affective disorders. Int J Psychiatry Clin Pract. 2002;6(3):147-153. doi:10.1080/136515002760276072
8. Aguglia A, Serafini G, Escelsior A, Canepa G, Amore M, Maina G. Maximum Temperature and Solar Radiation as Predictors of Bipolar Patient Admission in an Emergency Psychiatric Ward. Int J Environ Res Public Health. 2019;16(7):1140. doi:10.3390/ijerph16071140