

10475-Weather is an important factor in environmental medicine – results from a weather sensitivity survey in Germany

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Already in 400 b.C. Hippocrates has reported his experience on an increased incidence of complications during surgery on days with weather changes. Though the existence of health effects of weather has become part of common knowledge for a long time in many countries, there are only few studies searching for causal agents and the processes of weather sensitivity (WS). Until lately even scientifically founded data on prevalence and symptoms of WS in the population were lacking.

In order to collect basic data on WS for the design of new studies on its causal agents we conducted a WS survey in Germany. Altogether 1064 citizens (age>16) were interviewed in January 2001. The data were analyzed representatively for the German population in reference to age, gender, regional distribution, residential environment, professional and family status as well as size of household. The results reveal that 19.2% (28.0% female, 9.6% male) of the population report a “high degree” of weather influences on their health, 35.3% (37.6% female, 32.7% male) that weather has “some influence on their health”. The highest prevalence of WS (high + some influence) is found in the age group of >60 years in 68% of the subjects, the lowest in the group 16 to 29 years (40.6%). The highest frequencies of weather related symptoms are reported for stormy weather (30%) and, when it gets colder (29%). In Bavaria with the influence of warm Foehn winds also a high WS incidence is reported, when it gets warmer (30.1%). The most frequent symptoms stated by weather sensitive subjects are headache/migraine (61%), lethargy (47%), sleep disturbances (46%), fatigue (43%), joint pain (40%), irritation (31%), depression (27%), vertigo (26%), concentration problems (26%) and scar pain (23%). 32% of the weather sensitive subjects have been incapable to do their regular work because of weather-related symptoms at least once in the past year, 22% even several times. Weather sensitive subjects had significantly higher rates of co-morbidity for almost all chronic diseases listed in the questionnaire. The largest differences in co-morbidity between weather sensitive and non weather sensitive subjects were found for circulatory disorders (OR 7.1, CI 4.8-10.5), rheumatism (OR 2.9, CI 1.7-4.8) and allergies (OR 2.7, CI 1.9-3.8). In these analyses the different age patterns of WS and non-WS subjects have been considered by adjusting for age.

The results clearly prove the important role of WS for public health and economy. On basis of these data we are planning interdisciplinary exposure chamber studies on potential causal factors of weather-related health effects. As such low frequency oscillations of air pressure and sferics (atmospheric impulse radiation) will be in the center of our investigations as for both there already is some suggestion for health effects.

10515-STUDY OF THE SHAPE OF THE RELATIONSHIP BETWEEN MORTALITY AND TEMPERATURE IN 13 SPANISH CITIES.

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Objectives: To explore the shape and magnitude of the relationship between the daily variations of temperature and mortality in 13 Spanish cities within the EMECAM project (Barcelona, Bilbao, Cartagena, Castellón, Gijón, Huelva, Madrid, Oviedo, Sevilla, Valencia, Vigo, Vitoria and Zaragoza). **Method:** In each city, we modeled counts of daily deaths for all causes (excluding external) by using a generalized additive Poisson regression model (GAM) with nonparametric smoothing functions (loess or splines) to control for seasonal and long term trends, humidity, influenza and particles. To control seasonal and long term trends we used a loess whose span was chosen from 90 to 360 days (measure of fit: sum squares ACF). For humidity, we used a spline of the current value and the two first lags mean, whose df were chosen from 2 to 6 (AIC). For influenza, a spline of current value and 1 to 6 lags mean of smoothed by loess daily incidence, was used. Their df were chosen between 2 and 3 using AIC. In each city we tested linearity of particles, if this pattern was rejected (LRS), we used a spline of current value and the first lag mean, whose df were chosen from 2 to 4. Calendar patterns were also controlled: we included indicator variables for holidays and each day of the week. After this, temperature was added using a spline of current value and the two first lags. The optimal value for their df were selected from 2 to 6 (AIC). Lastly, when necessary, we incorporated autoregressive terms. Results were compared with those of a model including only temperature (simple model). Robust methods of estimation were used. We present the graphical relationship between mortality and temperature with the two models, simple and adjusted. **Results:** Only in Gijón, Huelva and Vitoria temperature effect was clearly not significant. "V-shape" was the predominant pattern in simple models, while in adjusted models "W-shape" was (shape with two nadirs), and, usually, softer. Results for temperature with minimal mortality (TMM) are very different along the cities, varying from 18.76 °C in Oviedo to 25.35 °C in Seville, in the simple model. In all cases TMM is smaller in the adjusted model, and in cold cities the adjusted model captures an effect of heat not detected by the simple one. **Conclusions:** Results varied considerably according to climatic characteristics of the cities. It is necessary to control the possible confusion by variables such as humidity or influenza. We highlight the great utility of the GAM when non-linear relationships are explored and lastly, the convenience of using estimation robust methods to avoid the influence of atypical values as much as possible.

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10650-PROBLEM-BASED LEARNING AS A TOOL FOR TEACHING EPIDEMIOLOGY

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The Department of Public Health has been teaching epidemiology to undergraduate medical and health science students through problem-based learning (PBL) since 1998. In the past medical students had viewed epidemiology as a discipline that was boring and of little relevance to the practice of medicine. The development of a new medical curriculum at The University of Western Australia provided us with an ideal opportunity to turn this around and capture the attention of students. This presentation will expand upon how we achieved this and include the students' evaluation of this style of learning and their attitudes to epidemiology.

The dilemma for us was determining the best way to help students to:

- Recognise the relevance and application of epidemiology.
- Achieve this while maintaining their motivation and enthusiasm.
- Learn to manage information in a rapidly changing world of knowledge.
- Learn epidemiological content in a context.
- Be able to integrate epidemiology with other disciplines.
- Develop a capacity for life-long learning.

The solution was to take a PBL approach. Students, working in small groups, are presented with a problem in the form of a scenario. In trying to solve the problem, they identify the deficits in their knowledge and then need to research these 'learning issues' to be able to conclude the problem. In a well-constructed course these learning issues are the same as the course objectives. The PBL approach has allowed epidemiology to be taught within a contextual framework while allowing the development of other skills, such as methods of enquiry and communication.

11023-The Burdens of Falls Among Old People in China

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INTRODUCTION:

There are 13.2 millions old people (over 60 years old) in China. Falls in the first cause of accident death among old people.

PURPOSES:

- To investigate the prevalence and burden of falls of old people;
- To analyse the risk factors of falls.

METHODS:

Cross-sectional study

Case-control study

Logistic modal

Social economic analysis

RESULTS:

The prevalence rate of falls was 20.65% (298/1443) in the past year among old people, male 14.00% (98/700), female 26.92% (200/743); urban 16.96% (86/507), rural 22.65% (212/936). The common cause of falls were slip and stumble. The risk factors for falls were female, history of falls in the last year, Chronic diseases, frequent headache and failed static balance. In consequence of falls: 6.11% fracture, 28.75% treated, 14.25% lie in bed, 24.68% temporary disability. The death rate was $69.30/10^5$. There's about 27 millions old people had occurred 36 millions falls per year in China. It may cause 220 thousands the aged fractures, 10 millions old people treated, 9 millions old people temporary disability and 91500 persons death. The cost of direct medical treatment of falls in old people was 7200 millions Yuan RMB per year.

CONCLUSION:

The falls of old people is a great important health problem. It bring about a heavy burden for society, reduce the quality of life among old people. It's have to make sure more evidence for geracomia.

Key words: Fall Old people China