

## Correlation between student complaints and meteorological data

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## **ABSTRACT**

### **Purpose**

This study analyzed weather conditions due to which students are likely to get sick or suffer injuries by examining the correlation between student visits to the treatment room and weather data. The aim is to ensure that students can lead a comfortable school life. Thus, it is necessary to consider the measures that teachers need to take.

### **Methods**

We examined the correlation between the number of medical and surgical complaints by symptom in the treatment room visit record of a junior high and high school in 2019 and weather data. The main medical complaints were headache, abdominal pain, dullness, sickness, discomfort, nausea, vomiting, diarrhea, constipation, sore throat, nasal discharge, cough, anemia, and dizziness, while the main surgical ones were abrasion, sprain, and jammed finger.

For the meteorological data, the data published by the Japan Meteorological Agency was used. The items were temperature, sea level pressure, precipitation, humidity, and average cloud cover.

Correlation analysis and an uncorrelated test were conducted ( $p < 0.05$ ). Long vacation periods and school event days were excluded from the analysis.

### **Results**

The main complaints correlated with temperature were headache, abdominal pain, dizziness, constipation ( $p < 0.001$ ), discomfort, anemia, sprain, and jammed finger ( $p < 0.05$ ).

The main complaints correlated with humidity were headache and discomfort ( $p < 0.05$ ). No correlation was found between the other complaints and weather conditions.

### **Conclusions**

In adults, headaches are associated with atmospheric pressure; however, in junior high and high school students, it was associated with temperature and humidity—many students complained of poor physical condition on hot days. Teachers need to prepare the environment of classrooms and facilities accordingly, especially in the summer.

In recent years, the number of people experiencing meteoropathy has increased. In this study, the amount of precipitation and cloud cover were not directly related to student visits to the treatment room, but it is considered that there are individual differences in weather conditions that are likely to lead to poor physical conditions. Therefore, more attention should be paid to students whose illness is likely to be related to the weather, such as by keeping records.

It was also found that there were many visits for surgical complaints on hot days. When exercising on a hot day, teachers are required to instruct students to take more thorough measures to prevent injuries, such as taking frequent breaks and stretching. In addition, we believe that the number of injured and unwell students will decrease if the temperature is considered while scheduling school events, such as sports festivals and school festivals.

### **KEYWORDS:**

student complaints, meteorological condition, meteoropathy, temperature