

EDITORIAL

Passion for football — and the hospital emergency department

La pasión por el fútbol en las urgencias

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"The alarm clock goes off. Still half asleep, I get up and look out the window. It's raining a lot, it's cold. I remember that this afternoon they are showing a Barça-Real Madrid on TV. It changes my face and my mood. I know that we will have a quiet guard".

What is true about the paragraph above? Most hospital emergency department (EDs) professionals would subscribe to it literally, or at least would not strongly disagree with it. Moreover, patients themselves know it and sometimes comment on it openly. From this perspective, we could say that it is part of popular wisdom. This natural science, the popular wisdom, which is the daughter of the course of time and of the most constant observation of the phenomena that are resolved alongside man in the intellectual, religious and material order, has produced a considerable accumulation of practical truths. But, simultaneously, the human beings have developed another science and another methodology to approach the explanation of those same phenomena: the scientific method¹. From the application of the scientific method, many beliefs of popular wisdom have been crumbling over the years, others have resisted, and even the best have proven to be true.

In recent years, some authors have scientifically investigated what external factors are associated with the number of patients in the ED. Among these, patterns associated with days of the week², environmental cycles, holiday and vacation periods, respiratory virus epidemics, climate and atmospheric changes and social and sporting events³ have been objectified. Likewise, changes in the influx associated with certain diseases⁴ or with specific actions⁵ have also been detected.

Ballesteros Peña et al.⁶ address, scientifically, the impact of soccer matches on ED patient attendance. Their conclusion seems clear: soccer has a limited modulating capacity that is especially evident in highly relevant matches. Has the scientific method demolished another belief of popular wisdom? The answer is simple, but the explanation is complex. The scientific method has not only disproved, at times, popular wisdom, but has also sometimes disproved itself. And when that happens, the contradiction is not in the methodology, but in how the problem has been approached or in the previous knowledge and data that were available about it.

The most robust way of scientifically studying a question with the aim of finding a cause-effect relationship is the experimental design. It is clear that, at present, the question of whether soccer matches have an influence on ED attendance cannot be answered from this perspective and, therefore, we are far from being able to establish causalities. Thus, for design purposes, we can only attempt to answer the question through observational studies. These are weaker when it comes to establishing causality and only allow us to find associations between variables that are generally expressed as correlations. That is, there is a relationship between event A and event B but, in principle, without any indication that it is one of them that causes the other. Searching for answers to certain questions through these designs can lead to contradictory results. In fact, through a practically identical design, Miró et al.⁷ found a clear relationship between the celebration of televised soccer matches of Fútbol Club Barcelona in the Champions League and the decrease of visits in a Barcelona's ED. Surely Ballesteros Peña et al. and, to a lesser extent, Athletic Club de Bilbao fans will not accept that Barça mobilizes a greater relative number of fans or that they are more loyal in front of the television than Athletic fans. But perhaps they would accept to question whether the control days were really "control days". Here lies the real weak link of these studies. It is considered that the control day is comparable to the case day except for one variable, the independent variable reason for study, in this case, the holding of a soccer match. Clearly, this is not the case. On control days many other variables occur, occur and have an influence, which can go in the same direction or different from that of the case days regarding ED attendance. Variables that we do not control at all and that, without pretending to be exhaustive, may include the celebration of other soccer matches or sports events, the retransmission of certain television programs with important audiences, climatic changes, etc. This important limitation, also present in the study by Miró et al., leads to a cautious interpretation of the findings and justifies apparently contradictory results. In order to try to "control" these other variables, multivariate studies are proposed in which the independent variable studied tries

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to adjust to these other variables, the more, the better. In the absence of this type of analysis, it should not be surprising that in one study there is hardly any relationship and in the other, this relationship is clear.

So, how do we address scientifically if the celebration of soccer matches has any influence on the frequentation of the ED? Currently, the answer is the big data. Big data is an evolutionary term that describes any large amount of structured, semi-structured, and unstructured data that has the potential to be extracted for information⁸. Part of this information lies in establishing correlations between different variables that are much more reliable than those found by conventional statistical methods. But in the face of the high expectations of big data we must be cautious. Indeed, the indiscriminate crossing of information in the search for correlations and even causalities can lead to the discovery of strange and extravagant associations known as spurious relationships. Causal relationships are not established by the mathematics of big data, but by the good work of analysts. The analyst's function is fundamental to generate knowledge; and on that knowledge to build the best possible answers. Thus, for the moment, the intellectual contribution of the researcher in the interpretation of the relationships found continues to be a key piece in obtaining answers that make sense.

Until this happens, the next day that the alarm clock rings, I am on duty and there is a relevant soccer game, I will go to the ED believing that we will still have a smaller influx of patients

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References

- 1 Castillo M. The scientific method: a need for something better? *AJNR Am J Neuroradiol*. 2013;34:1669-71.
- 2 Sánchez M, Smally AJ. Comportamiento de un servicio de urgencias según el día de la semana y el número de visitas. *Emergencias*. 2007;19:319-22.
- 3 Tudela P, Mòdol JM. La saturación en los servicios de urgencias hospitalarios. *Emergencias*. 2015;27:113-20.
- 4 Martín Martínez A. Las revisitas a urgencias de los pacientes con fibrilación auricular. *Emergencias*. 2019;31:77-8.
- 5 Guerrero JA, Luaces Cubells C, Jiménez Fàbrega X, Villamor-Ordozgoiti A, Isla Pera P, Guix-Comellas EM. Impacto de las consultas y triajes telefónicos pediátricos en el uso del servicio de urgencias hospitalario. *Emergencias*. 2019;31:257-60.
- 6 Ballesteros Peña S, Fernández Aedo I, Vallejo de la Hoz G. Impacto de los partidos de fútbol en la frecuentación de pacientes a un servicio de urgencias. *Emergencias*. 2020;32:345-8.
- 7 Miró O, Sánchez M, Borrás A, Millá J. Fútbol, televisión y servicios de urgencias. *Med Clin (Barc)*. 2000;114:538-9.
- 8 Househ MS, Aldosari B, Alanazi A, Kushniruk AW, Borycki EM. Big Data, big problems: a healthcare perspective. *Stud Health Technol Inform*. 2017;238:36-9.