

Tooth fairy science or science for oral health?

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In times of physical distancing and changes in our routines, such as the postponement of the **Meeting of the Brazilian Group of Dental Materials**, we must reflect on some crucial points of our research activity. More specifically, in Dental Materials research, it is important to reflect where we should make efforts to advance science in the area.

The highest impact journals in restorative dentistry publish articles on the frontier of knowledge with the most up-to-date technology for evaluation and developing materials. However, it shows us that the state-of-the-art research is far from becoming the current standard of care. In the nowadays standards of care, we use restorative materials different from those at the knowledge border, although with low failure rates and with very well-defined outcomes influencing factors. Knowledge of the patients' oral health, systemic health, and socioeconomic conditions allow predictability of treatment longevity. Analyzing the reasons for treatment failures at research papers published and presented at congresses, **it is worth questioning where restorative dentistry research is going.**

Is research at the frontier of knowledge based on decreasing the chances of failure of treatments with the search for new materials and solutions? Or do we realize research for the sake of the researcher? Or are we replicating data beyond the repetitions necessary for good science? In the attempt to bring the frontier knowledge to the standard of care or, in other words, we have to police ourselves not to accomplish the so-called **“tooth fairy science.”** Harriet Hall¹ described it as follows: “If you don't consider prior probability, you can end up doing what I call Tooth Fairy Science. You can study whether leaving the tooth in a baggie generates more Tooth Fairy money than leaving it wrapped in Kleenex. You can study the average money left for the first tooth versus the last tooth. You can correlate Tooth Fairy proceeds with parental income. You can get reliable data that are reproducible, consistent, and statistically significant. You think you have learned something about the Tooth Fairy. But you haven't. Your data has another explanation, parental behavior, that you haven't even considered. You have deceived yourself by trying to research something that doesn't exist.

Failures in restorative treatments still occur besides the research to improve oral health, to the advancement of dental materials. It is up to us, professionals of restorative dentistry, to make efforts to maintain the excellence of Brazilian Dentistry by accelerating the translation of frontier knowledge to the standard care in oral health. Further, it is a challenge for dental associations, for professors who work in different fields of Dentistry, and for each clinician.

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