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Perspective

Listening to patient narratives and documenting culturally based treatments: from clinical observation to hypothesis generation in migraine prevention

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Abstract

Patient narratives may reveal culturally grounded health practices rarely captured in conventional clinical assessment, but they may offer relevant insights for scientific inquiry. We discuss the report of a woman from rural northeastern Brazil whose longstanding migraine attacks reportedly improved after the daily consumption of mustard seeds, a practice initiated following advice received in a dream. Although this observation cannot establish efficacy or causality, mustard-derived isothiocyanates have biological properties involving inflammatory, oxidative, nociceptive, and TRPA1-mediated pathways that provide a plausible basis for hypothesis generation. Rather than proposing mustard seeds as a migraine preventive treatment, this Perspective uses the narrative to illustrate how attentive documentation of traditional practices and unexpected clinical observations may identify questions suitable for experimental investigation. Historical examples further illustrate how unconventional observations and insights have occasionally contributed to scientific discovery. Integrating culturally competent listening with rigorous scientific evaluation may therefore broaden opportunities for hypothesis generation while allowing clinicians to assess the safety, effectiveness, and potential interactions of culturally grounded practices. Patient narratives should not replace scientific evidence, but they may help identify observations worthy of systematic investigation.

Keywords:
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A patient undergoing follow-up for a cystic pituitary lesion reported that she experienced infrequent migraine attacks, occurring less than once a month. During a consultation, however, she shared a curious story involving her mother, who lived in the rural backlands of northeastern Brazil, in the town of Ipu, Ceará.

According to the patient, her mother suffered from severe and frequent migraine attacks for many years. One night, her mother dreamed of her own mother, who had already passed away — that is, the patient's grandmother. In the dream, her deceased mother instructed her to grind mustard seeds and take approximately one level coffee spoon (about 2 mL) mixed in a small cup of coffee every morning on an empty stomach. She followed this advice daily, and, according to the family, her migraine attacks almost completely disappeared.

This account is fascinating for at least two reasons. First, it involves a dream in which guidance is received from a deceased relative. Second, it describes the use of mustard seeds as a preventive treatment for migraine, a practice that may belong to the realm of traditional medicine.

Although anecdotal, this observation cannot establish efficacy or a causal relationship between mustard seed consumption and improvement in migraine. Rather, it provides a starting point for considering whether an unexpected patient narrative can generate a scientifically testable hypothesis.

Mustard seeds contain several bioactive compounds, including glucosinolates and their metabolites, such as isothiocyanates. Experimental studies have suggested that these substances possess anti-inflammatory, antioxidant, and vasomodulatory properties (1–9). Some isothiocyanates may influence inflammatory pathways involving cytokines, oxidative stress, and neurogenic inflammation (8,10).

Experimental evidence indicates that isothiocyanates modulate oxidative stress, inflammatory signaling, and TRPA1-mediated nociceptive pathways, although clinical evidence in migraine prevention is currently lacking. Although no established evidence currently supports mustard as an effective preventive treatment for migraine, its pharmacological properties provide a plausible basis for further investigation, particularly because allyl isothiocyanate, the principal pungent constituent of mustard, is a well-established TRPA1 agonist involved in trigeminal nociception and CGRP-mediated neurogenic inflammation (7,10,11).

TRPA1 is involved in trigeminovascular activation and migraine pathophysiology (11). However, mustard may also attenuate pain (12). Although no clinical evidence supports mustard seeds as a migraine preventive treatment, the known pharmacology of mustard-derived isothiocyanates provides a biologically plausible hypothesis that deserves experimental evaluation.

Interestingly, the role of dreams in scientific discovery is not limited to folklore. One of the most celebrated examples in neuroscience involves the discovery of chemical neurotransmission. In 1921, Otto Loewi reportedly conceived the experimental design that demonstrated the existence of chemical neurotransmitters after awakening from a dream (13,14). His experiment involved two frog hearts connected in series. Stimulation of the vagus nerve in the first heart released a substance—later identified as acetylcholine—that slowed the beating of both hearts. This landmark observation provided the first convincing evidence of chemical neurotransmission and ultimately earned Loewi the Nobel Prize.

According to Mendeleev's own later account, he envisioned the arrangement of the chemical elements in a dream, leading to the formulation of the periodic table (15). Although the story has acquired legendary status, Mendeleev himself described how the organization of the elements appeared to him after intense reflection.

Although anecdotal, the present case recalls several well-known examples in the history of science in which dreams have been associated with creative insights. Friedrich August Kekulé also described a dream that inspired the cyclic structure of benzene. While such accounts do not constitute scientific evidence, they illustrate how unconscious cognitive processing during sleep may occasionally facilitate the emergence of novel ideas or solutions to previously unresolved problems.

These historical examples remind us that dreams, intuition, and traditional knowledge have occasionally served as starting points for major scientific advances. Most dreams do not lead to discoveries, and most traditional remedies ultimately prove ineffective. Nevertheless, science progresses by investigating unusual observations rather than dismissing them outright.

Documenting transcultural health practices is increasingly important (16,17). Throughout history, many traditional remedies initially regarded as folklore were later shown to possess genuine biological effects. Although anecdotal reports cannot establish efficacy, they may generate valuable hypotheses for future scientific investigation.

The story of a woman from rural Ceará who found relief from migraine after following advice received in a dream should not be viewed as evidence of efficacy. Rather, it

serves as a reminder that potentially valuable observations may emerge from unexpected places. Whether mustard seeds possess clinically meaningful preventive effects in migraine remains unknown. However, the account highlights the importance of documenting transcultural health practices and evaluating them through rigorous scientific investigation.

In addition, culturally competent care, grounded in active listening to patients' self-care and culturally grounded practices, is important because it may improve adherence, strengthen therapeutic dialogue and the physician–patient relationship, and facilitate assessment of the safety, effectiveness, and potential interactions of these practices with conventional treatment.

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