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## The Value in Verifying Medical Folklore

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In this issue of the *Journal of Patient-Centered Research and Reviews*, McFadzen et al report their findings regarding the ability of 411 pregnant women to predict the gender of their babies.<sup>1</sup> In many cases these predictions, shown to be no more accurate than random guessing, were based on one or more examples of folklore. As the authors point out, few robust studies have been performed on the various homespun beliefs used to predict gender prebirth.<sup>1</sup>

Yet, I submit that such folk axioms not only fascinate those inclined to whimsy but are widely accepted as fact by many people.

Being one of those people myself (inspired by my father who correctly predicted the gender of six of our unborn babies for whom he had such intuition based on how my wife was “carrying the baby”), I was curious to see if other common medical folklore beliefs in Western society had been “scientifically tested.” Upfront disclaimer: the following samples do not represent a comprehensive literature review on the subject.

Beginning with another example of pregnancy folklore, Costigan and colleagues studied 64 pregnant women who ranked their intensity of heartburn. This measure surprisingly was found to be statistically associated with newborn hair volume as determined by two independent coders, seemingly supporting the belief that a lot of heartburn predicts the baby will be born with a lot of hair.<sup>2</sup>

Moving to infancy, as discussed in a recent review, there are a number of parental beliefs regarding teething as the etiology of a variety of local and systemic symptoms.<sup>3</sup> While local irritative or inflammatory symptoms may be attributed to infant teething, neither fever of 39°C or higher, diarrhea, vomiting nor rash have held up to scientific scrutiny as outcomes of teething alone.<sup>3</sup> Undiagnosed viral infections, which are common in this age group, were suggested as likely etiologies of some of these coincidentally occurring manifestations; clinicians are cautioned not to ascribe signs and symptoms of a potentially serious infection to teething.<sup>3</sup>



Regarding treatment of nonserious fever and common viral infections, I was told growing up to “starve a fever and stuff a cold.” Four Amsterdam researchers studied 6 healthy young adult male volunteers and demonstrated that starvation increased interleukin-4 production and “skews toward a humoral immune response.” Ingestion of a test meal increased gamma interferon levels (cell-mediated immune response).<sup>4</sup> While far from definitively proving the old adage, the results of this pilot study suggest that different feeding states can affect the immune response.

Chicken soup, a mother’s favorite cold remedy, was tested in 15 healthy individuals in the 1970s.<sup>5</sup> Indeed, both sipped chicken soup and chicken soup by straw increased nasal mucus velocity but not nasal airflow resistance as compared to cold water, a sham procedure, and hot water by straw.<sup>5</sup> While lacking hard evidence regarding patient-centered outcomes, chicken soup is

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referred to by Ohry and Tsafrir as “an essential drug,” backed by centuries “of observational and anecdotal evidence.”<sup>6</sup> This was opined somewhat tongue-in-cheek (with the authors noting “depriving the control group of chicken soup would be unethical”); however, they more seriously commented on the difficulty of performing randomized controlled trials of chicken soup, such as a plethora of nonstandardized formulas and the number of maladies to be tested (problems that would apply to many folk remedies).<sup>6</sup> Who would fund such trials anyway?

Of course, the mother (pun intended) of all common viral-related folklore is the admonition, “Don’t go out without your coat, you’ll freeze and catch cold.” Viruses, not cold exposure, cause colds, and these viruses simply tend to be around more during colder weather, right? After noting that viral inoculation studies had failed to prove cold exposure increased the likelihood of infection by cold viruses, Eccles hypothesized, based in part on prior research, that acute body cooling leads to upper airway vasoconstriction; as vasoconstriction reduces the local supply of blood leukocytes, this effect might convert subclinical infections (apparently common) into clinical ones.<sup>7</sup>

Johnson and Eccles randomized 180 healthy individuals to receive either acute chilling of the feet with cold water versus keeping shoes and socks on and placing the feet into an empty bowl.<sup>8</sup> There was a (barely) statistically significant larger proportion of those with chilled feet who reported having a cold in the 4–5 days following the procedure (13 of 90 vs 5 of 90), and higher cold-symptom scores in the experimental arm.<sup>8</sup> Viral studies were not done.

While much more research is needed to clarify this complex association — as suggested by an independent 2007 review<sup>9</sup> — perhaps Mom is not all wet (and cold).

Tangential to nearly every field of medicine lies some level of unproven conventional wisdom. In orthopedics, a study on the dangers of knuckle cracking led to mixed results but a conclusion that the naysayers are correct; one should not engage in this behavior. Castellanos and Axelrod examined 300 consecutive middle-aged or older subjects without evidence of malignant, neuromuscular or systemic inflammatory disease in a systematic fashion. Knuckle crackers did not have a disproportional amount of hand arthritis compared

to non-knuckle crackers; however, the former were more likely to have hand swelling and diminished grip strength.<sup>10</sup>

Much folklore exists surrounding the phases of the moon. A sample of retrospective studies revealed that moon phases appear to have no effect on the outcome of lung cancer surgery,<sup>11</sup> whereas two studies were split on their association with the occurrence of aneurysmal subarachnoid hemorrhage.<sup>12,13</sup> The lunar cycle appeared to have no association with psychiatric admissions or emergency psychiatric evaluations at a naval medical center in San Diego,<sup>14</sup> nor did the full moon predict psychiatric visits at a children’s hospital in Miami.<sup>15</sup>

Responding to a 2001 initiative by the British government to encourage hospitals to plant trees on their grounds, proponent Francis Biley acknowledged the lack of “scientific evidence to support such an edict” yet still went so far as to suggest that folklore also should guide hospital tree-planting designs.<sup>16</sup> For example, birch trees, which are associated in folklore with protection of children, could be planted near pediatric wards.<sup>16</sup> To date, no scientific study on whether this initiative actually impacted patient well-being at British hospitals has been reported. However, in a randomized, cross-over, within-subject study of elderly women requiring ambulation assistance that used heart rate variability as proxy, data suggested that a hospital rooftop forest was more physiologically relaxing than an outdoor car park.<sup>17</sup>

As caregivers, we should not perpetuate folklore to the detriment of our patients, such as failing to correct a parental perception that teething could explain a significant infant febrile illness. We may selectively condone folklore that appears to have some evidence behind it, such as chicken soup for the common cold<sup>6</sup> (although not to the point of hypernatremia). Unsubstantiated but apparently harmless measures, like planting a certain tree outside a chronically ill child’s window, may be appropriate if done as a comfort measure, sans shallow hope<sup>18</sup> or superstition.

And as long as we keep the total lack of scientific evidence in perspective,<sup>1</sup> harmless methods of predicting the gender of one’s baby can still serve as a fun diversion.

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