Opinion

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Science + Magical Thinking

Nina Gotteiner, my pathology lab partner in medical school, and I often studied together before tests. She was smart, practical, and studious, and she rarely wore jewelry. So I was surprised when she told me that she only wore her engagement ring—a beautiful marquis diamond—for tests because it brought good luck. She was completely serious, and apparently the ring worked: Nina did well in medical school and is now a pediatric cardiologist at Lurie Children's Hospital. She introduced me to the power of magical thinking.

Magical thinking is the belief in causal relationships between actions and events that seemingly cannot be justified by reason. In a poignant memoir, *The Year of Magical Thinking,* Joan Didion wrote of her private (and temporary) belief that she could bring back her deceased husband if she saved his clothes. She described the comfort of magical thinking during the process of grieving. It turns out that many ophthalmologists engage in magical thinking, too.

I once scrubbed on a strabismus case with Carolyn Oesterle, a pediatric ophthalmologist. I was stunned, when at the end of the case, Carolyn placed her hands on the forehead of the child and said some incomprehensible incantation. Carolyn explained that she started this protocol during her fellowship and has said the same gobbledygook over every case since. Why stop now and risk misalignment?

My retina colleague, Jon Gieser, has worn the same pair of shoes in surgery for nearly 30 years. They've been resoled several times, and the holes are colored in with a Sharpie. This gifted retinal surgeon has superb outcomes, so why get new shoes? Jon insists that he has worn the same pair all these years because they're comfortable, but I suspect they mean something more. Lisa Wohl, a cataract surgeon, confessed that she wore pink flamingo knee socks in the operating suite for years and was distressed when they wore out. As she explained, "It's pretty typical of ophthalmic surgeons to try to control what is sometimes an uncontrollable environment, and maybe lucky socks is how we do it." Christie Morse, a pediatric ophthalmologist, always wears red socks for surgery and reports that she's never had a case of endophthalmitis. Christie is adamant: "My surgical outcomes are directly related to my red socks."

There is some science that supports magical thinking and altered outcomes.[1] For example, at the University of Cologne, subjects were instructed to putt 10 golf balls. When told that "this one has turned out to be a lucky ball," participants scored 2 more putts on average than when told that the ball was "the one everyone has used so far." Another experiment rated performance on memory tasks with and without a participant's own lucky charm. The subjects who had a lucky charm performed better and demonstrated more perseverance on the tests. Perhaps such a talisman improves performance because belief in its power increases self-confidence.

My own magical thinking includes a belief that enough visual fields and low target pressures will maintain central vision in my advanced glaucoma patients. I'm excited about Josh Stein's work engaging Kalman filter algorithms to develop predictive models for progression using visual field, intraocular pressure, and OCT data.[2] His work will probably help achieve my dream, but perhaps something less analytic is just as important. My magical thinking inspires hope in me and in my patients—and, sometimes, that is even more important than saving points on the visual field.

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Ophthalmologists are great clinicians, scientists, and surgeons. We are also magicians. We use words and body language and flashes of insight to comfort our patients and give them hope. Our weird routines serve to remind us that there is so much more to being a physician than being technically correct, than making the right diagnosis, than choosing the best treatment. We are at our best when we are scientists and magical thinkers at the same time.

1 www.ncbi.nlm.nih.gov/pubmed/20511389.
2 www.ncbi.nlm.nih.gov/pmc/articles/PMC4495761.