

## Cancer survivors: outstanding advocates for trust in science

More than half of Americans do not trust the scientific community<sup>1</sup>. Why do I reject the majority, and trust the scientific community? Because Dad is still laughing at his own jokes. Because Grandpa still brags that he beats me at tennis. Because now Dad, Grandpa, and 15 million other Americans are living as cancer survivors, whereas two generations ago, they would have been buried as cancer victims. Cancer survivors are walking, talking, beloved proof that scientific research saves lives. A recent picture of me and my dad, with a caption saying that he was rescued from bladder cancer 10 years ago by scientifically-proven therapies, can serve as clear and affecting evidence that science can be trusted to help us. In a movement united by the hashtag #livingwithscience, we can use social media as a platform to share thousands of touching and convincing cancer survival stories and pictures. In the #livingwithscience movement, people who do not trust science will be faced with undeniable proof, embodied by their friends and family who survived cancer, that science saves lives.



Each #livingwithscience post will have a caption highlighting scientific research as a reason for one's own, or a loved one's, cancer survival (Figure). #livingwithscience posts are best made on the cancer survivor's birthday, because this promotes annual sharing of their story, and because

every extra birthday candle is a powerful symbol of the time gifted by science. I can make #livingwithscience posts across all my social media outlets, reaching upwards of a thousand people. One of them is Jeff, a college classmate who is skeptical of science, and frequently posts anti-vaccine articles on his Facebook. He could refuse to believe that scientific research saved my Dad's life, but here's why I bet he will trust me instead: Jeff and I had a friendly and trusting relationship together back in school. Our history of trust, and shared group membership as alumni, make me a reliable and trustworthy sharer of information in Jeff's eyes<sup>2,3</sup>. This is critical because research shows that information from a trusted sharer is overwhelmingly believed to be true, even if that information is wildly inaccurate. The best people to extol the virtues of science on social media are not scientists, who are not widely trusted, but rather trusty old friends! <sup>4</sup>

The universal possibility of cancer ensures that #livingwithscience will permeate all groups of people, even groups that typically shield themselves from open scientific discourse. If Jeff or someone he loves is a cancer survivor, then he might be moved to make a #livingwithscience post and share it with his friends, many of whom probably share his skeptical stance on science given that we tend to craft our social media environment to affirm our existing beliefs<sup>5</sup>. Jeff would therefore serve as a bridge carrying #livingwithscience from my silo of friends, over to his silo of friends, many of whom are skeptical of science. A major benefit of #livingwithscience is that pro-science sentiment will organically arrive on the social media doormats of people who do not trust science, and these are the people we need to reach.

It could be a challenge to get #livingwithscience to catch on. To get the word out, I will partner with advocacy groups that send e-mail newsletters to cancer survivors, like the American Cancer Society's Cancer Survivors Network. I think a good portion of cancer survivors will devote 5 minutes to making a post because sharing a #livingwithscience post is much easier than running the 5K "Race for the Cure", which thousands of cancer survivors do every year. If #livingwithscience does generate momentum, perhaps celebrities who are cancer survivors like Robert DeNiro would post their #livingwithscience story and make it a viral movement.

The most daunting challenge facing the #livingwithscience campaign is to effectively convert Jeff into someone who trusts science. Jeff may engage with #livingwithscience posts, but will he trust the research showing that his anti-vaccine viewpoint is needlessly dangerous? Probably yes, because belief in one field of science (cancer research) is well-correlated with belief in other fields (vaccine research)<sup>6</sup>. Furthermore, the “mere exposure effect” says that Jeff will likely cultivate an appreciation of the broader scientific enterprise, because we tend to like things, and trust things, that are familiar to us<sup>7</sup>. The successful dissemination of #livingwithscience will therefore make the benevolent and trustworthy image of science more familiar and more trusted with every post that Jeff sees. Importantly, the hashtag itself has a subliminal message, which is reported to enhance this mere exposure effect. #livingwithscience of course has the literal meaning that science breathed life into cancer survivors, but it is also a subtle reminder that we live with science all around us, and everyone’s life is elevated by the fruits of the scientific research enterprise every day.

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