Public Health and Online Misinformation

Coffee Beans

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The online world of the 21st century has opened up entirely new information channels for lay health professionals. With some exaggeration, it can be said that the Internet has "democratized medicine."

Platforms X and WhatsApp are in many ways a great thing, however, the discussion of professional issues by all indiscriminately, the repeated sharing and replying to posts in group chats, can very easily get out of hand due to the complexity of the topic and open the door to misinformation threats (1). At the same time, moreover, websites, generally considered to be trustworthy sources of health information, are proving to be vulnerable to misinformation. For example, numerous unverified testimonials about the positive effect of apricot kernels in the treatment of cancer can be traced on WebMD (2); despite the fact that WebMD, under the "Side Effects" tab, accurately described apricot kernels as "probably dangerous" and, under the "Overview" tab, reported that they "could cause serious harm, including death". The addition of a lay comment section has opened the door to a huge amount of completely uncontrolled lay expression, opinions, and beliefs, with misinformation potential. Similarly, it is possible to find positive references regarding apricot products on the Amazon.com shopping platform. The idea that alternative medicine alone can cure cancer is completely wrong. About 40% of Americans believe that alternative medicine, such as diet, herbs, and vitamins, can cure cancer without the use of standard treatments (2, 3). Taken strictly statistically, the decision to forgo standard treatment in favor of alternative medicine means doubling a patient's risk of death.

The need for surveillance of health information, especially for sites that we know are likely to thrive on medical misinformation, is proving more than necessary. The tools exist, we just need to find an appropriate surveillance system.

Today's patient is no longer a passive recipient of information, but can, and very often does, actively participate in seeking it out and analysing it for themselves. However, the quality of the information is crucial for the patient/layman, as is his/her ability to come to the right conclusions on his/her own. If the patient does not have this ability, the question is what this may mean for them in terms of consequences.

Although many studies evaluating the quality of health information on the Internet have noted improvements in the quality of information over time, this is still a persistent problem. The quality of general health information online clearly cannot be guaranteed, and it is now up to individuals to be discerning and critical of the information they read.

A report (4) states that 36% of US adults have basic or sub-basic health literacy. The estimated economic burden of this level of health literacy is theoretically equivalent to roughly $238 billion dollars spent annually to treat patients' poor decisions influenced by misinformation on social media (5). Individuals with low health literacy are more likely to delay preventive care appointments and are more likely to be hospitalized as a result, their overall health is significantly worse, and statistics indicate a higher mortality rate (6).

However, it seems that the vast majority of people, not just those with basic health literacy, use poor quality websites when looking for health information. Aaron Quinn and his colleagues asked participants in their study to search for six common health questions and then tracked whether participants went to accredited sites or non-accredited sites such as blogs. They found that 96% of people used a non-accredited source for at least one question (7).

It appears that, although health information seekers are able to separate reputable sources from less credible ones, they may not always engage with high-quality information if the low-quality information is more understandable or engaging. Stacy Loeb and her colleagues have documented a negative correlation between scientific quality and viewership for prostate cancer-related information on YouTube. In other words, as scientific quality decreased, engagement (e.g., number of views and likes) increased. This suggests that even creators of content with high scientific quality should consider how to make their educational information more understandable and engaging (8).

One example of an engaging public health television campaign that was highly effective in changing attitudes and behaviors was the Australian SunSmart campaign "Slip! Slip! Slap!" which began in the 1980s. The animated seagull provided a simple message to 'put on' protective clothing, 'slather' yourself in sunscreen and 'slap on' a hat, proving to help reverse the trends of rising skin cancer rates in Australia (9). Campaigns need to be run in a similar way in the age of social media; it is not just the quality of the information but the marketing of it that determines its effectiveness.

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