

The Dark Side of Health Literacy: A Cautionary Tale on Supplement and Protein Misuse



Text by Dr Chie Zhi Ying, Deputy Editor

In this era of digitalisation and artificial intelligence (AI) technology, one can easily get extensive information on any subject within seconds with just the click of a button on your mobile phone, tablet or laptop. As a family physician seeing patients from all walks of life, I frequently get questions from two groups of patients on the subject of health supplements. The first group are the health-conscious patients who believe they have done their due diligence in researching the latest health fads, super foods or health supplements that could boost their health and well-being and want to gain my endorsement for them. The other group are those who are curious or confused by websites or advertisements marketing such products, or who were told by their well-meaning family members, relatives, friends and colleagues to try these products, but wanted to seek my opinion before doing so.

A typical patient I see in these scenarios is a young to middle-aged male patient, ranging from being a student pursuing higher education to a well-educated, busy working professional. He takes pride in keeping himself physically fit and healthy, working out in the gym or doing high-intensity interval training sessions a few times a week. Based on his online sources, he adheres to a regimen of high-dose protein powders, creatine, energy drinks and a mix of vitamins and herbal supplements purchased online. He

proudly shows me pictures of his supplements and explains to me in detail what their purported health benefits are. For instance, over-the-counter protein supplements are now widely marketed as boosts to bodybuilding, fitness, weight loss or vitality.

I frequently have to do an Internet search to understand what exactly the ingredients inside these products are, their doses and the sources where they were manufactured or purchased from, as well as the marketed health benefits before I can engage in any meaningful conversations with my patients.

When health literacy goes awry

According to the World Health Organization, health literacy means being able to access, understand, appraise and use information and services in ways that promote and maintain good health and well-being. It means more than being able to access web sites, read pamphlets and follow prescribed health-seeking behaviours. It includes the ability to think critically about, as well as the ability to interact and express personal and societal needs for promoting health.

Health literacy is often championed as a cornerstone of modern healthcare, empowering patients to take ownership of their well-being, make informed decisions and engage

meaningfully with healthcare professionals. Against the backdrop of the Healthier SG initiative, a super-aged population and rising prevalence of chronic diseases, preventive health as well as improving health literacy and education of our patients are key priorities in ensuring a healthy and active population.

Yet when health literacy is partial, misguided or influenced by unreliable sources, it can potentially lead to harm. Patients who believed they are making “informed” decisions may, in fact be navigating a fragmented ecosystem of social media advice, fitness influencers and, increasingly, AI-generated content. The result is a growing trend of over-the-counter supplement misuse, excessive protein consumption and self-directed health regimens that carry unintended consequences.

Such was the case for one of my patients who saw me for health screening and was found to have slight proteinuria with high normal creatinine (his previous laboratory test results last year were normal and much better) although he has normal fasting glucose, lipids and blood pressure. He was well and asymptomatic. He jogged half an hour a few times a week but otherwise did not take part in any other more rigorous physical activities that could have explained his symptoms and laboratory test results. He also had sufficient hydration.

When I asked him if he had taken any health supplements/powder/shakes, he shared with me excitedly about his daily intake of creatine supplements and protein shakes and told me that he read that they were essential for building muscle strength, mass and for body recovery. I took time to explain to him the possible causes of his abnormal test results and symptoms. When I saw that he understood the implications of his abnormal test results and was very concerned about his health, I took the opportunity to share with him that while it was good to see him actively reading up and taking steps to take care of his health, the ingredients in the health supplements he was taking, especially when taken excessively, could lead to the test results that he had. I was glad that he was receptive to my advice to stop all these supplements immediately.

The harms that these health supplements and proteins can cause are often subtle and frequently overlooked but clinically significant. They can cause liver and renal toxicity, excessive protein load on kidney resulting in proteinuria, drug interactions with chronic medications that patients are on and palpitations/arrhythmias from stimulants containing supplements for pre-workouts.

Given that my patient was young, generally well without major comorbidities and not excessively exercising, I reassured him that as long as he takes balanced and healthy meals, his body would have enough intake of essential nutrients such as proteins and vitamins. I introduced him to the Health Promotion Board's My Healthy Eating Plate concept, advised him on physical activity and sufficient intake of water, and arranged for a dietitian review and another appointment to see him some weeks later to monitor his results. When he returned some weeks later, his laboratory tests had normalised, much to our relief. I then recommended some credible sources to read up for his health and cautioned him on the dangers of unfiltered reading of online sources. Fully convinced that it was indeed the health supplements that resulted in his abnormal laboratory

tests, he felt he learnt important lessons from this experience.

Unreliability of online information

So how did health literacy become misguided? Social media platforms, the Internet and AI have become major sources of health information. The content of such information is often simplified and catchy to ensure virality rather than accuracy, driven not by evidence but by anecdotes and influenced by commercial interests.

Although we have unprecedented access to a vast array of information and sources, patients can have limited ability to filter and judge the credibility of the sources. The context in which such products are marketed are not well understood or explained to the general public, and it is often challenging for a layperson to apply information to his/her own health when there is little or no consideration to individual risks, comorbidities or dosage limits. AI-generated advice can come across as authoritative, often confirming whatever the user poses to it while lacking consideration to individual risk profiles and comorbidities.

How should doctors respond?

As shared in the scenario earlier, the first step is to avoid being dismissive or confrontational. It is useful to acknowledge our patients' efforts to improve their health to maintain our rapport and trust with them. It is also important to have a curious mind to explore their ideas, concerns and expectations about their health and the role supplements play.

The second step is to reframe the consultation in a way that focuses on individualised advice regarding the risks and benefits of such products and how they might apply in the patient's context. Using objective laboratory results can help to illustrate your points on how taking such supplements can cause abnormal results, therefore making it more credible and persuasive to patients.

The third step is to educate patients on how to check for credible sources and guidelines, and to always be cautious

about extreme claims. This would also be the time to give recommendations such as safe and adequate protein intakes, the indications for supplements if needed, and the emphasis on balanced and nutritious meals.

Conclusion

As doctors, we play the essential role of guiding and refining our patients' health literacy, correcting misinformation while empowering our patients to cautiously navigate the labyrinth of information sources they are exposed to. By demonstrating genuine curiosity, respect and concern for our patients, we can build trust and rapport and take the opportunity to encourage patients to take charge of their health with sensible application of evidence-based health practices for the betterment of their health. ♦

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