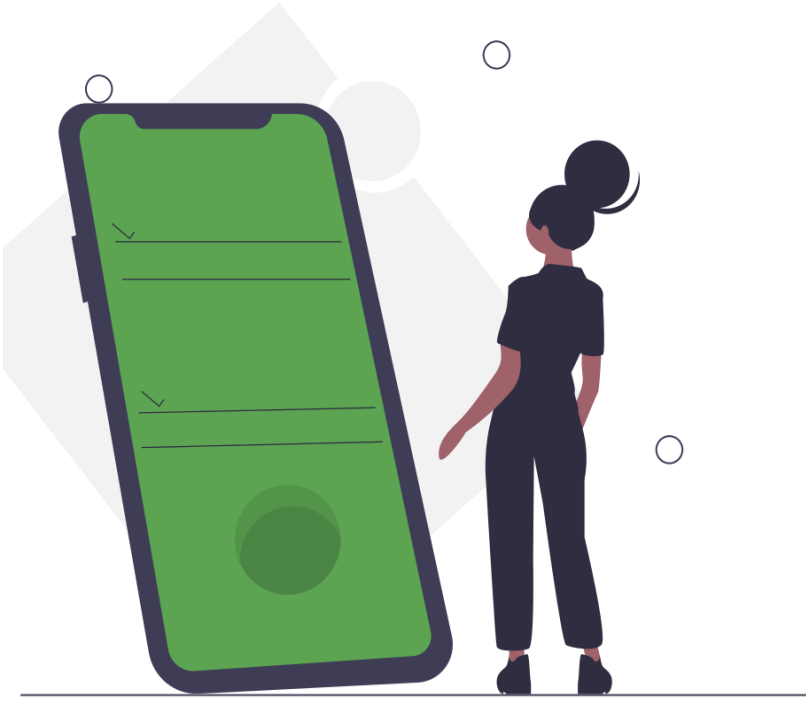
FEATURE

When Social Media Met Nutrition

How influencers spread misinformation, and why we believe them

TEXT **ZOE LOFFT**
VISUALS **KATERINA LIMPITSOUNI**



Over the past decade, the proliferation of social media platforms and the emergence of the role of "influencers" on social media has led to a potentially dangerous online landscape, characterized by mass amounts of misinformation that disseminates faster than ever before.

Misinformation has polluted nearly every topical area, spreading from politics to science. One interesting site pertains to nutritional advice. A pressing issue has arisen as an increasing number of unqualified social media influencers spread unsubstantiated claims about nutrition to vulnerable consumers. Influencers profit from selling meal plans or dietary guides and gaining mass followings. Meanwhile, high-quality, observation-based scientific research in nutrition is over-simplified and extrapolated as collateral damage. Misinformation is potent, spreads quickly, and can be resistant to correction. This multi-faceted problem may never be fully languished but increasing critical thinking and healthy skepticism around information seen online and recognizing instances where influencers may have exploited their power in the past, may help increase awareness of the problem.

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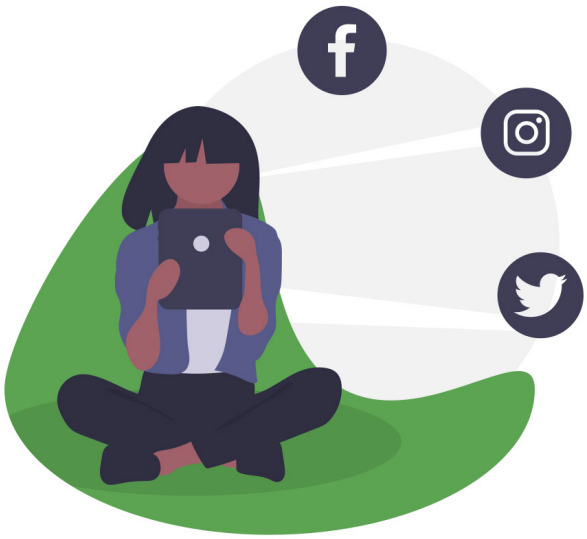
Canadians are increasingly turning to the internet and social media as a source for health information. A 2019 survey conducted by Statistics Canada revealed that almost six in 10 Canadians under 35 use the internet to keep up to date on health research and news [1]. Moreover, this demographic was more likely to stay informed on health information though social media [1]. However, the information on these sites may be sourced from influencers –third-party endorsers who shape audience attitudes through blogs, tweets, and other media [2]. Despite this self-directed path of discovery, only five per cent of Canadians reported being very knowledgeable about health research [1].

An important question may then be: why do people fall victim to believing misinformation about health, and particularly nutrition? One aspect of the answer may be explained by how people process information, especially if it pertains to topics they are not well informed on. The heuristic-systematic model (HSM) of information processing suggests that people digest information differently and may be more vulnerable to persuasion depending on how much they know about a topic [3]. A U.S. study looking at factors that influence the perceived credibility of diet and nutrition information websites found that when people are confident in their knowledge of a topic, they process information systematically – analyzing the quality of the message, and scrutinizing it based on what they already know [4,5]. However, if not, they become vulnerable to relying on external variables independent of message quality, such as how long or complex the message seems, or how favourably they view the communicator of the message [4]. The study also reported that when participants believed a message to be more accurate, they were more likely to think the site was trustworthy, irrespective of the credentials of the site's author [5]. The ability of an individual to correctly discern if a message is accurate or not may moderate their opinion on credibility, which could result in them unwarrantedly trusting the source of information.

Naturally, it can be seen how this phenomenon translates into the online world when people are unknowledgeable on a particular topic and vulnerable to being misinformed. Many social media influences in the fitness and wellness space are attractive and have sought-after body types. This commonly leads followers to question how the influencer achieved their physique, and they become eager to emulate the fitness and diet regime of the influencer, trusting them as an expert authority because of their aesthetics alone. This demand creates a position of power for the influencer, making them feel entitled to inform others about diet, nutrition, and exercise. Simultaneously, it sets up the perfect cascade to launch the sale of meal plans, diet e-books, or virtual dietary counseling, even without proper qualifications to do so. Of course, many qualified scientists, registered dietitians, and other professions have social media followings, but they may not be perceived as relatable to the consumer, or their content may not be as visually pleasing, or easy to digest. To increase the value of the nutrition-related content they sell or produce, influencers may seek out more information. The growth of the online world has enabled anyone with an internet connection to reach the growing amount of open access, high-quality scientific information online. However, increased access to information does not always translate to an increased understanding of it.

To appropriately interpret results of a scientific study, it is imperative for the methods to be critically appraised, as aspects of a study design have a dramatic influence on the applicability of the research. For starters, the experimental model – which cell line, types of animals, or human participants – upon which the hypothesis is tested is a fundamental aspect and may affect how results from the studies can be interpreted. For example, if a study population focuses on overweight, Hispanic men with type-two diabetes, the results may not be applicable to Chinese, Caucasian, and African American women with other body compositions or health conditions. Secondly, results depend entirely on the quality of the experimental methods used and how things were



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measured . For instance, there are many different ways to classify someone as overweight, one method uses body mass index, which relies on weight and height measurements alone. Conversely, imaging methods like dual x-ray absorptiometry, measure weight in addition to body composition: the amount of fat, bone, muscle, and water that your body is comprised of. Although both methods offer cut-offs to describe someone as overweight, the quality of information gathered is not the same. The latter is far more informative, due to the ability to discern between lean and fat mass. Finally, even once results are obtained, how results are analyzed can influence research conclusions. This is especially true in rapidly emerging fields where no gold-standard of analysis exist. Even with the best intentions, results can be misinterpreted or used out of context, and due to the large following of social media influencers, the consequences can be especially pronounced.

In a European study reviewing the uses, benefits, and limitations of using social media for communicating health-related information, the researchers noted several limitations, largely pertaining to concerns over the quality of information, and ability to discern what is reliable [6]. A particularly worrisome limitation was that social media may act as a deterrent for patients from visiting health professionals [6], which in the case of nutrition may refer to registered dietitians. Another aspect that makes misinformation so volatile relates to its spread. A study conducted at the Massachusetts Institute of Technology found that false news stories on Twitter spread significantly faster and more broadly than true stories (7). The false news was more novel than the factual, which suggested people may be more inclined to share novel information [7]. The rapid spread of misinformation is further illustrated by a Polish pilot study which found that in a five-year period, 40 per cent of the most frequently shared links contained false news, which were shared nearly 500,000 times [8].

In addition to the rapid spread of false news, the consequences of its dissemination can be particularly potent. In a Slovenian study, researchers found that selective exposure was the primary driver of content diffusion, meaning how we use social media can often create information echo chambers [9]. Social media users can curate their feeds, selecting and sharing content related to the specific narratives they subscribe to and ignore the rest [9]. This is pronounced with influencers who build their personal brand around a dietary pattern, such as following the keto diet or vegan diet. The influencer aggregates a community of followers who subscribe to the same beliefs about food and the ideas get reinforced, whether they are factual or not.

Another common space for the formation of echo chambers is on podcasts. Influencers often select guests based on parallel alignment with their beliefs. Instead of conversing with someone that may cause them to think critically and question their ideas about nutrition, they get validation, and whatever message they ascribe to substantiate their theory is perpetuated. This further reinforces their messages to followers, even erring on the side of advertising if the influencer sells diet guides based on these beliefs. Although it may be subtle, this is a toxic pattern because the strategic reinforcement of an idea from different sources may dissuade people from feeling inclined to independently confirm the facts.

Frighteningly, it is thought that increased exposure alone to an unsubstantiated claim might increase the aptitude of believing it – something known as the "mere exposure effect" [10]. In the realm of social media and nutrition, misinformation often comes in the form of influencers proposing reasons to adhere to a specific diet. In the case of the keto diet, it is often propagated that eliminating carbohydrates will allow our bodies to burn fat instead of storing it. Conversely, many supporters of the raw vegan diet allege that the fat you eat is the fat you wear, insinuating that by eliminating fat and only eating raw plant-based foods, it will be virtually impossible to store excess fat.

Formation of these echo chambers, and repeated exposures to the information can strengthen its perceived validity, making the damage severe and difficult to reverse. A U.S. study aimed at understanding factors underlying effective messages to counter attitudes and beliefs on misinformation found that persistence was stronger, and the debunking effect was weaker when audiences generated reasons in support of the misinformation [11]. People struggled to later question and change their initial attitudes and beliefs when they were able to generate arguments supporting the misinformation [11]. The proposed mechanisms behind the success of a dietary pattern can be a powerful tool to persuade people, even if it is untrue. When trying to debunk the misinformation, the researchers found that labelling something as misinformation was not enough, and corrective information needed to be introduced [11].

Whether the reasoning behind following a dietary pattern is substantiated or not, no single diet or amount of food will be suitable for everyone. The release of Canada's new Food Guide in January 2019 was less quantitative than ever

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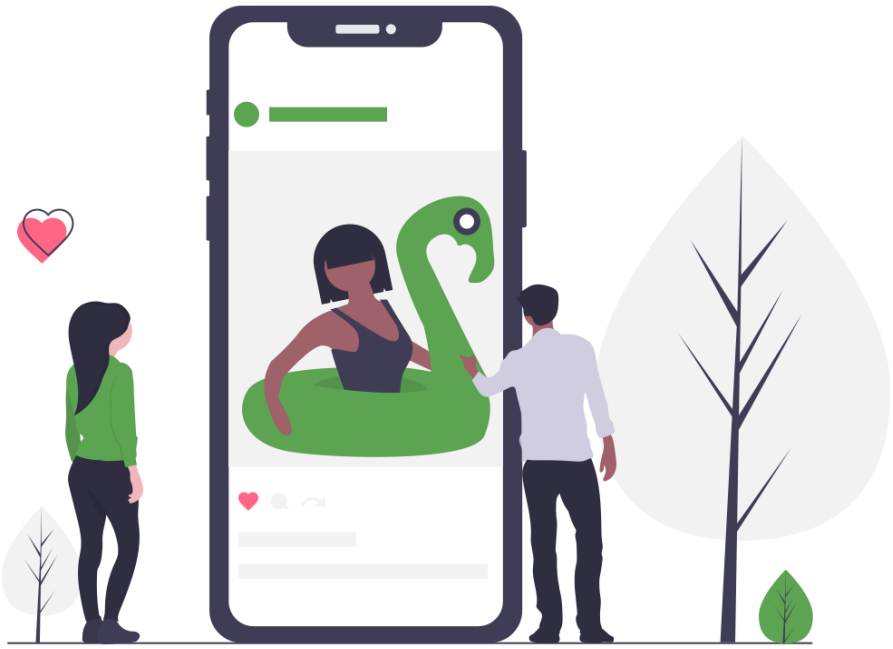
before. Recommended serving sizes and number of servings per day were removed, since the optimal intakes for two people could vary widely based on variables like how active they are or their basal metabolic rate – even if they are the same age and gender. Instead, the guide highlighted the general consensus to move toward a more plant-based diet that emphasizes whole foods, and encouraged consumers to use food labels and be aware of food marketing [12]. Many influencers who promote one-size-fits-all diet plans for weight loss may strategically mention select studies to support the proposed reasons behind their efficacy. However, when considering the totality of evidence, recent work from Columbia university highlighted that there really is no consensus when it comes to topics like the age-old debate of low-fat or low-carbohydrate diets for weight loss [13]. Diet plans may encourage you to believe that the answer is simple, and the science is streamlined, when in reality it’s not. Above all, continuously evolving studies coupled with advancements in technology have revealed that it is pertinent to consider highly individualized characteristics when prescribing a diet to someone, such as their genetics and their gut microbiota – the population of microbes in the gut that can influence health status and nutrient absorption.

“I don’t think diet plans should be ‘sellable,’” said Ohood Alharbi, a nutrition and genomics specialist. Alharbi received her PhD from the University of Toronto, and recently founded her own business – Personalize My Diet. Her work centres around personalized dietary counselling and recommendations for clients based on genetic profiling data and high-quality research. “I’ve had non-experts suggest to me selling diet plans, but my integrity doesn’t allow it,” Alharbi said. “It defeats the purpose and the message that I share with my clients. I must look at each person’s medical history, diet history, social life, everything. It’s personalized.”

Moving forward, it is important to recognize that the spread of misinformation about nutrition may never relent. Although protected titles such as registered dietitian exist, this does not seem to stop people from trusting advice from influencers that lack credentials but have large followings. Increased surveillance of nutrition information online may be one step in addressing this problem, but a proactive approach may be more prosperous. Namely, content consumers should continue to be educated on how to think more critically about what they are seeing online, especially when the sale of a product is involved. The requirement of certain disclosures like including the hashtag “ad” when posting pictures that are part of a paid brand partnership are important steps in increasing transparency in general. However, the line is less clear when influencers are not paid by a brand but are rather selling their own products that are not even physical items, such as a diet e-book or virtual personalized dietary coun-



selling. It is especially important to explain these nuances to vulnerable audiences like teenagers.

To increase education around nutrition in general, different tactics have been proposed to make scientific information more digestible. One idea involves the use of narratives to communicate science to nonexpert audiences, due to the increased comprehension, interest and engagement that storytelling may offer [14]. Lastly, audiences can also learn through the cautionary tales of others, like that of Dallas-based fitness influencer, Brittany Dawn.

Although lacking any appropriate nutrition credentials, Dawn built a business with her Instagram and YouTube following of over 500,000 by selling personalized diet and workout plans. Her plans cost hundreds of dollars and came with the promise of updates and direct contact with Dawn herself. But it turned out that clients found it nearly impossible to get in touch with Dawn and if they tried to express concerns through comments on her social media platforms, they would promptly be deleted. In the end, unsatisfied clients banded together and realized their "personalized" plans were in fact identical. Presently, an active petition on change.org has nearly 14,000 signatures for, "Stop Brittany Dawn Fitness Scams." This is not to say that all influencers should be labeled as scammers, nor that misinformation is apt to result in a scandal of this degree. However, it is important to recognize how easily influencers can exploit their power in an environment that is not highly regulated.

It may be a tough pill for those who inappropriately profit from misinformation to swallow, but proper science is no place for clickbait. Rather, the scientific process relies on the accumulation of well executed studies and the evaluation of their impact together, over time. Often, the over simplified or extrapolated message is more attractive. Who wouldn't want to hear that all you must do is eliminate carbohydrates and eat mostly fats to become a lean, fat burning machine? Everyone is searching for a panacea, but unfortunately, there is no miracle diet plan nor secret superfood elixir that will launch you into good shape or longevity. With the mass volumes of user-generated content being uploaded every hour to various social media platforms, it may be unfeasible to monitor all of the nutrition information shared, and likewise, it would be unrealistic to expect the lay public to be an expert on it. Moving forward, it will be important to instill a healthy level of skepticism and critical thinking surrounding nutrition information, and to emphasize the role for increased knowledge translation around nutrition research.

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