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What does it mean to "do your own research?" A comparative content analysis of DYOR messages in Instagram and Facebook posts about reproductive health, food, and vaccines

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Abstract

Calls to "do your own research" (DYOR) on social media promote a range of claims, from expert-recommended treatments to conspiracy theories. Exploring how the slogan is used offers insight into how individuals navigate concerns about information accuracy in an abundant but low-trust media ecosystem. This quantitative content analysis investigates how DYOR messages in Facebook and Instagram posts about reproductive health, food and diet, and vaccination are used to raise alarms, promote personal agency, and disclaim responsibility. We additionally examine how DYOR messages are associated with content including risk information and product promotion. While DYOR messages sometimes raise alarms about suspected conspiracies and misinformation,

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more often they advocate for personal agency and education, encouraging people to become as informed as possible to make the best decisions for themselves. In this way, DYOR messages promote individual responsibility for navigating information risks and reflect wider concerns about (mis-)information and distrust of institutions.

Keywords
Do your own research, expertise, information seeking, social media, trust

Introduction

In the contemporary media environment, where information is abundant but not always credible, doing one's own research comes with both risks and benefits. Many in the United States are concerned about the dangers of misinformation on social media and its effects on society (Barthel et al., 2016), and are also skeptical of information from traditional news and journalists (Hanitzsch et al., 2018; Nelson and Lewis, 2023). Meanwhile, social media offers an unprecedented amount of information from countless sources (Cotter and Thorson, 2022), resulting in a high-volume, low-trust digital media environment in which it can be difficult to discern credible information from potentially dangerous information.

In this environment, some assert it is better to "do your own research" (DYOR) rather than rely on information provided from traditional sources, institutions, and experts. Calls to DYOR have raised concerns that doing one's own research is unfeasible and epistemologically unsound (Ballantyne et al., 2024; Buzzell and Rini, 2023), perpetuating problems of misinformation when individuals seek information that reinforces their prior beliefs or worldviews (Lord et al., 1979; Meppelink et al., 2019). However, seeking additional knowledge can be particularly valuable for individuals whose concerns are systematically minimized by institutional experts (Korda and Itani, 2013) and for accessing knowledge that is socially undervalued (Fricker, 2007; Wellman, 2023). In short, while calls to "do your own research" inherently encourage some level of general skepticism, they also reflect a range of sentiment regarding expert institutions, from supportive to outright hostile (Ballantyne et al., 2024; Carrion, 2018). Recent work has described the origins and epistemic implications of DYOR (Ballantyne et al., 2024; Buzzell and Rini, 2023), explored the beliefs of individuals who support DYOR (Chinn and Hasell, 2023), and investigated DYOR in the spread of disinformation and conspiracies online (Marwick and Partin, 2024; Tripodi et al., 2024). However, little work has empirically examined the different ways in which "do your own research" messages are used on social media, and what such messages reveal about how people negotiate ambivalent trust in expertise when faced with abundant information.

This study presents a novel investigation of calls to "do your own research" in Instagram and Facebook posts about reproductive health, food and diets, and vaccination made during the first year of the COVID-19 pandemic in the United States, during which DYOR messages became prominent in social media. In this quantitative content analysis, we identify three main functions of the phrase "do your own research" used in

social media—*disclaiming responsibility*, *raising alarms*, and promoting *personal agency*—and discuss their implications for understanding informational concerns and trust in expertise across different domains. In addition, we compare the prevalence of these uses across social media platforms and examine how they co-occur with messages about expertise, risk, conspiracies, misinformation, and product promotion. In doing so, we offer some of the first empirical insight into the function of calls to "do your own research" in social media.

Background

Origins of "doing your own research"

Calls to DYOR are not unique to social media nor the COVID-19 pandemic, but they have circulated more widely and garnered more attention on social media in recent years. The earliest use of the phrase was traced to Milton William ("Bill") Cooper, an American anti-government conspiracy theorist who encouraged people to think independently and uncover conspiracies and deceptions through their research (Ballantyne et al., 2024). Though Cooper was killed in a gunfight with Arizona police in 2001, the slogan has persisted. DYOR and similar messages have been widely utilized in online spaces by anti-vaccination activists (Carrion, 2018; Kata, 2012). Here, the phrase has not always communicated outright rejection of scientific information or lack of scientific literacy, but concerns that experts are corrupted by financial incentives and political motivations at the expense of vaccine safety (Carrion, 2018). However, at times, the phrase has continued to promote conspiracies; QAnon conspiracy theorists, who believe that former President Trump is working to dismantle a powerful group of elite pedophiles who run the United States, used social media to advocate "doing your own research" to uncover hidden explanations of current events (Marwick and Partin, 2024). Given its use in these contexts, many now associate DYOR with distrust of government and the spread of misinformation across a range of topics.

However, doing one's own research is also a civic responsibility of all living in a democratic society. Independent information seeking is valued and encouraged across domains like healthcare and politics (e.g. Korda and Itani, 2013; Milner, 2002). Some calls to DYOR on social media are used to promote normatively good behaviors like researching ballot referendums or seeking further information on recommended health treatments. Seeking more information, verifying facts, or having a moderate level of skepticism all tend to be associated with normatively positive outcomes (e.g. Quiring et al., 2021). However, the concerns lie in whether individuals can find credible and accurate information about complex topics (Ballantyne et al., 2024) and whether the refrain of DYOR is an expression of anti-establishment worldviews rather than a quest for information (Chinn and Hasell, 2023).

Doing your own (biased) research

At its heart, DYOR as a message reflects a degree of skepticism of popular information or beliefs. It implies that one should not take information at face value and should

instead critically assess available information, so that, one can make an informed decision or opinion without the influence of others—which is not necessarily bad advice. In the United States, it may be particularly resonant because the country has a strong ethos of personal responsibility and a history of anti-intellectualism and distain for elites (Hofstadter, 1966; Hook and Rose Markus, 2020). In addition, trust in mainstream news and journalism in the United States is generally low and has been declining (Nelson and Lewis, 2023; Rainie et al., 2019) and people have become increasingly concerned about mis- and dis-information (Barthel et al., 2016). These two trends leave people wanting accurate information but struggling to identify trustworthy sources. As people often become overwhelmed by the information environment, they feel the need to come up with strategies and logics to evaluate information, often by drawing on their social networks to evaluate and make sense of information (Cotter and Thorson, 2022; Feinstein and Baram-Tsabari, 2024). These epistemic networks of social connections support sense-making by providing additional information, context, specialized knowledge, and interpretation of complex information (Feinstein and Baram-Tsabari, 2024). In this uncertain environment, people increasingly place their trust in peers, influencers, and other opinion leaders for information, rather than experts or institutions (Schmuck and Harff, 2024; Turcotte et al., 2015) when they do their own research (Buzzell and Rini, 2023).

DYOR may seem to be a prudent appeal for fact checking, but doing one's own research is often unfeasible and epistemically unsound (Buzzell and Rini, 2023). People do not have the time or skills to evaluate all the information they encounter, and when they do, they may fall prey to perceptual biases. Particularly online, individuals are often poor judges of information quality (Ballantyne et al., 2024). When individuals lack subject area knowledge or rely on gut feelings or intuition to evaluate information, they often come to inaccurate conclusions (Ballantyne and Dunning, 2022; Garrett and Weeks, 2017). Furthermore, when individuals have strong prior beliefs, values, and identities around a given topic, they are motivated to seek and interpret information in ways that support those priors (Lord et al., 1979). Some individuals may have a high degree of knowledge on a given topic, but many people overestimate their knowledge and their ability to spot inaccurate information (Ballantyne et al., 2024; Lyons, 2022). Indeed, survey work has found that people who think "doing your own research" is better than trusting expert information tended to develop less accurate beliefs about COVID-19 over time (Chinn and Hasell, 2023). In sum, people often lack the knowledge and training to effectively do their own research and those who do may be more likely to confirm their prior beliefs and worldviews rather than become more accurately informed.

Trust in institutions and DYOR

Journalism is not the only public institution facing a crisis of public trust in the United States, where there has been increased concerns about the failures of many public institutions to serve the citizenry. While trust in science and medicine, as institutions, is generally high (Nadeem et al., 2020), certain groups in the United States are extremely wary of both and some have legitimate reasons to be mistrustful. Systemic dismissal of certain

groups' credibility as knowers leads to persistent harms at the hands of so-called experts (Fricker, 2007). For example, the testimony of women or people of color about their symptoms is often devalued or not taken seriously by healthcare providers (Cleghorn, 2021; Thompson et al., 2023). In this context, women of color experience measurably poorer care and systemic discrimination from medical providers in the United States (Bailey et al., 2017; Vedam et al., 2019) and seeking further information from alternative sources and using outside advocates can improve health outcomes (e.g. Bond et al., 2021). Seeking expertise and social support from those outside institutions (e.g. patient communities) can cultivate tools to better advocate for oneself or family. In contexts when the experience, knowledge, and expertise of certain groups and identities are systematically devalued (Fricker, 2007), seeking information outside expert institutions offers historically marginalized individuals opportunities to learn about relevant topics (e.g. reproductive health, health practices grounded in different cultures and communities). In this way, doing one's own research, rather than trusting experts blindly, may be an empowering process that can help people navigate the complexities, bureaucracies, and/or politics of institutions.

At the same time, digital media have also contributed to shifting social dynamics surrounding expertise. Changing communications technologies have made it easier to share traditionally undervalued knowledge and community preferences (e.g. Epstein, 1995; Wynne, 1992), contributing to a "flattening" of expertise (Kata, 2012). For example, the ability to seek information about treatments, providers, and the experiences of other patients from the Internet empowers patients to interact with medical care like active consumers, rather than passive recipients (Kata, 2012). In prior work, DYOR messages have reflected flattened views of expertise in anti-vaccine discourses, whose advocates assert that their own research, as well as intuition and maternal instinct, are as valuable for medical decision-making as their doctor's recommendations (Carrion, 2018; Smailhodzic et al., 2016). In these and other alternative health spaces, alternative epistemologies leverage personal experiences, beliefs, and one's own "research" to assess the trustworthiness of official information and institutional expertise (Cullinan et al., 2024). The ease of searching and creating information in digital media environments can both offer opportunities for navigating persistent devaluation of some groups' knowledge and experience, and also lead some individuals to believe that through their online research they have as much, or more, knowledge and credibility than credentialed experts.

The meaning(s) of "do your own research"

This work presents multiple, sometimes competing, uses of DYOR, from conspiracy promotion to empowering epistemic agency. Indeed, Herrman (2022) noted that DYOR can be, "a rallying cry, a disclaimer, a meme and a joke—an invitation to a community as well as a reminder of its harsh limits." Ballantyne et al. (2024) describe DYOR messages as a command, a way of signaling values (like autonomy, evidence-based reasoning, or anti-elitism), a rhetorical strategy, and a method for forming beliefs. Understanding how DYOR is used can offer insight into how individuals navigate an abundant, low-trust information environment. In this analysis, we identified three ways in which DYOR

messages have been used. First, calls to DYOR are used to *raise alarms* about dangers and threats, real or imagined, that remain relatively unknown to the general public (Ballantyne and Dunning, 2022). DYOR messages also frequently advocate *personal agency* by communicating the importance of being intellectually independent, not allowing others to inform one's decision-making, and affirming the value of seeking diverse views and perspectives (Ballantyne et al., 2024). Finally, DYOR messages are used as a *disclaimer* to emphasize that a messenger's intent is not necessarily to position themselves as an authority or expert, and that audiences should independently seek out further advice and recommendations. Our study considered three research questions. First, we investigated how frequently different uses of DYOR messages appear in posts about different science topics, including reproductive health, food and diet, and vaccination. We next investigated how the use of DYOR messages differed across two platforms, Instagram and Facebook. Finally, we explored how other message features like risk information, conspiracy theories, or product promotion, were associated with different uses of DYOR messages.

Research Question 1 (RQ1): How prevalent are different uses of DYOR messages in social media posts about reproductive health, food and diet, and vaccination?

Research Question 2 (RQ2): Does the prevalence of different uses of DYOR messages differ between Facebook and Instagram?

Research Question 3 (RQ3): How are different uses of DYOR messages associated with other messages features in social media posts?

Methods

Data

DYOR messages have been most commonly circulated on social media where individuals who have concerns about information from mainstream news can diverse viewpoints. For this reason, we focused our investigation on two platforms: Instagram and Facebook. While both popular social media platforms, these platforms have different features and audiences that drive systematic differences in content (Hiaeshutter-Rice et al., 2021; *Pew Research Center*, 2024). Analyzing DYOR messages across these platforms may therefore present broader insights into DYOR messages that circulate on social media, as well as present opportunities for comparisons between platforms. Data for this content analysis were collected via CrowdTangle, an API owned by Meta that purported to offer researchers free access to all publicly available posts made on Instagram and Facebook that have not been removed or taken down prior to data collection.[1]

Figure 1 depicts the data collection and sampling procedure. In July 2021, we collected all historical public Instagram and Facebook page posts that used at least one of the following phrases: "do your own research," "do my own research," "doyourownresearch," "doyourresearch," "domyownresearch," and "doyourresearchpeople." Phrases with no spaces were designed to capture hashtags. After confirming that all posts

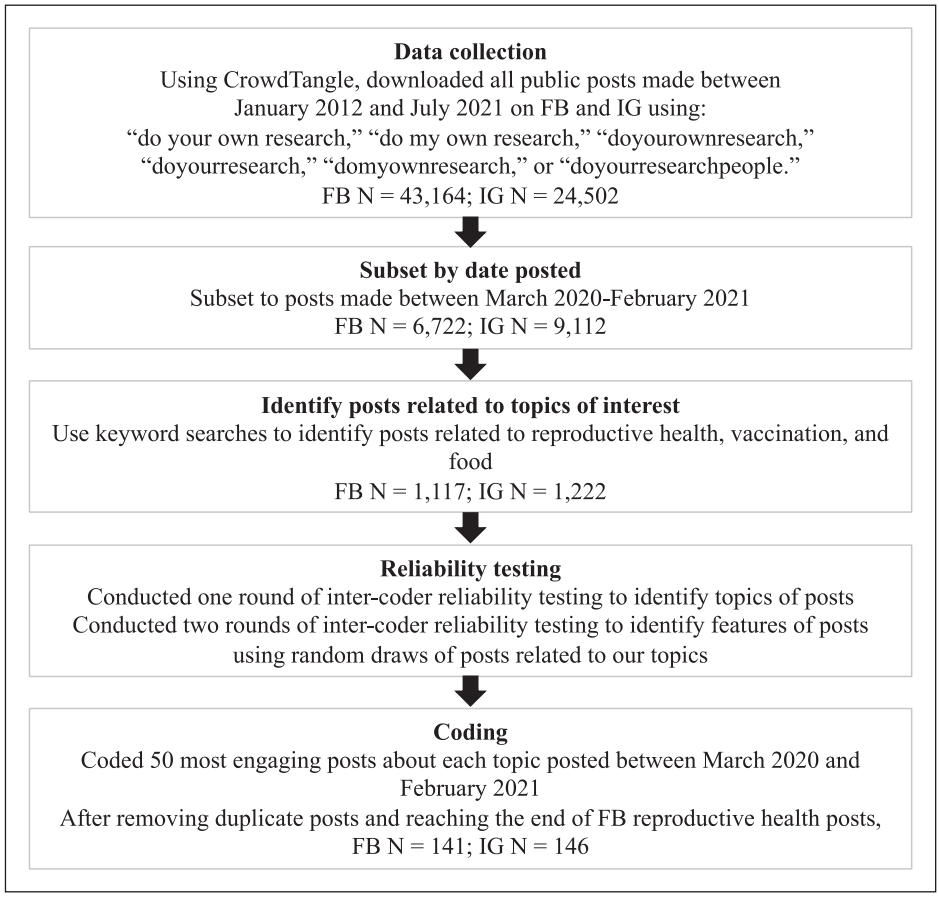


Figure 1. Data collection and sampling procedure.

included at least one of these phrases, we subset the data to posts made in the 1-year period post-COVID in the United States (March 2020–February 2021). This was a time marked by high uncertainty (the first year of the COVID-19 pandemic before vaccines became widely distributed) and serious misinformation concerns around COVID-19 and US election security (Ballantyne and Dunning, 2022; Nelson and Lewis, 2023). Amid this uncertainty and anxiety, DYOR messages circulated widely online and were in turn covered by wide-reading news outlets (e.g. Herrman, 2022). Though DYOR messages had been used in science and health social media content prior to this (e.g. Carrion, 2018), we focused on this time to investigate how the phrase was used as it increased in public visibility.

We analyzed DYOR posts about three science-related topics, vaccination, reproductive health, and food/diet, as social media posts about these topics might reflect diverse uses of DYOR. First, research has documented DYOR and other messages encouraging

Table 1. Search keywords.

Do your own research phrases	"do your own research," "do my own research," "doyourownresearch," "doyourresearch," "domyownresearch," "doyourresearchpeople"
Reproductive health	"pregnan*", "birth", "obgyn", "fertil*", "baby", "babies", "infant*", "menstrua*", "period*", "womens health", "women's health", "midwif*"
Food and diet	"food", "diet", "gmo*", "organic*"
Vaccination	"vaccin*", "immunization*", "shot", "vax*"

Asterisks indicate that variants of the stem were captured in search results.

independent research and skepticism of experts in online social networking spaces in the context of vaccination since the 2010s (Carrion, 2018; Kata, 2012), including contemporary social media discussion of COVID-19 vaccines (Ballantyne et al., 2024; Chinn and Hasell, 2023). Next, there is a long history and increasingly visible discourse about the failures of healthcare systems to provide adequate and safe reproductive care in the United States (Bond et al., 2021; Cleghorn, 2021); seeking outside information from alternative sources can be a prudent method to ensure and advocate for competent care. Finally, food/diet was chosen as the third topic as it is widely popular to a broad audience of social media users (*Pew Research Center*, 2018). The abundance of conflicting claims about food and diets from both expert and non-expert sources on social media presents a challenge for users to navigate. Collectively, these topics reflect a spectrum of politicization. COVID-19 vaccines were salient and emerging as a politicized topic, reproductive health is a long-polarized issue in the United States, and during this time, there were discussions about how recent Supreme Court appointments might affect legal access to abortion, while in contrast, food topics are typically less politically contentious.

We used dictionaries that identified posts with relevant keywords as a first step to identifying posts related these topics (Table 1). This yielded a total of 1222 Instagram posts and 1117 Facebook posts that used a "do your own research" phrase were posted publicly between March 2020 and February 2021, and included a keyword related to reproductive health, food and diet, or vaccines. While topic search keywords were helpful in identifying relevant posts, they did not entirely exclude other topics (e.g. posts about cryptocurrency persisted in the data set). Therefore, human coders additionally verified each post's relevance to the three topics and that the post was in English (see inter-rater reliability coding below for more information).

For the final sample, we coded the 50 posts with the most interactions for each topic (reproductive health, food and diet, vaccination) on each platform (Instagram, Facebook) during the first year of the COVID-19 pandemic (March 2020–February 2021). By coding those posts that received the most interactions, we aimed to describe the nature of DYOR posts that individuals may be most likely to see online, as more engaging posts tend to get broader circulation online (DeVito, 2017; see Supplemental Information for post-interaction metrics). Although our initial target was 300 posts, the final sample consists of 287 coded posts. This was due to data entry errors (e.g. coding posts multiple times, recording the wrong post ID) and because we had already

included all available Facebook posts related to reproductive health in our data set, leaving us with fewer posts to analyze than initially planned.

Identifying DYOR uses

In this study, we inductively identified three distinguishable uses of DYOR messages prior to data collection through a close reading of DYOR Instagram and Facebook posts. These three functions of DYOR messages include: to *raise alarms*, promote *personal agency*, and to *disclaim responsibility*. While these three uses do not necessarily reflect all functions of DYOR messages, they are the most prominent uses reliably identified in social media content about reproductive health, food and diet, or vaccines.[2]

Raising alarms referred to the use of "do your own research" to protect against a threat often attributed to corrupt or deceitful actors. DYOR *raising alarms* posts were often accompanied by calls not to trust information from experts and elites who have "fooled" or "duped" the public, as well as explicit calls to mistrust the information being "pushed" by mainstream media (e.g. calls to DYOR and stop listening to propaganda). They commonly doubted the veracity or completeness of information from official sources, attributing doubt to bias or corruption. To mitigate these perceived threats, *raising alarms* DYOR posts frequently called for independent thinking to resist being cowed and controlled by authority.

The second use of "do your own research" promoted *personal agency*, education, and empowerment by appealing to the normative benefits of being informed. Such messages advocated that audiences seek to educate themselves about diverse opinions and information to empower themselves to make the best decisions for their unique circumstances and preferences (e.g. encouraging audiences to ask for options and become as informed as possible). They were often explicit that content was not intended to be persuasive or prescriptive, instead affirming the agency and ability of individuals to independently reason and make decisions for themselves (Ballantyne et al., 2024). These posts often suggested DYOR to navigate conflicting information and acknowledged both the value and limitations of both expert and lay experience. In this way, *personal agency* DYOR messages may boost feelings of self-efficacy for information seeking and decision-making, providing motivation for taking action (Bandura, 2006).

The final use was as a *disclaimer*. Here, DYOR messages were used to avoid blame or responsibility for any negative effects that may befall those who emulate behaviors or follow recommendations of the message creator. Posts using DYOR as a *disclaimer* were often explicit about doing so, using the word "disclaimer" or emphasizing that the messenger was "just" sharing their experiences, opinions, or research. Disclaiming messages often acknowledged that the messenger's own knowledge may be limited (e.g. emphasizing that the poster is not a doctor or not sharing medical advice) and that their advice or experience may not be applicable to the audience's own situation. By calling doing so, messengers may be both shielding themselves from liability while also building credibility by encouraging audiences to verify and fact check their claims (DeAndrea, 2014; Walther et al., 2009).

Inter-rater reliability

We utilized a quantitative content analytic strategy to generalize, to a limited degree, about DYOR discourses on social media and create a codebook that could be replicated with reliable coders on this or other data sets. We tested inter-rater reliability in two stages. First, we tested inter-coder agreement on only our topic codes, that is, whether the coders agreed that the post was related to either reproductive health, food and diet, or vaccination. After approximately 10 hours of training and practice coding, we drew a random sample of 30 Instagram posts and 30 Facebook posts (total 60 posts) that contained at least one dictionary keyword relating to issue topics (see Table 1). Human coders rated whether these posts were indeed about reproductive health, food and diet, or vaccines. To evaluate the reliability of coding, Krippendorf's alpha was computed using the ReCal software program (Freelon, 2013). The two coders achieved acceptable inter-rater reliability for all three topic codes (reproductive health $\alpha = .79$, food and diet $\alpha = .87$, and vaccines $\alpha = .91$).

After achieving reliability concerning the topics of the social media posts, two coders collectively coded only the topics of an additional 240 posts each. This yielded a set of 194 posts (approximately 65% of keyword-identified posts) from which we randomly sampled to conduct reliability testing for the remaining codes.

The second stage of reliability testing concerned codes for DYOR uses and other message features. Prior work had raised concerns about connections between DYOR messages and expertise, risk perceptions, conspiracies, and misinformation (Ballantyne et al., 2024; Chinn and Hasell, 2023). We therefore coded posts for the presence of expert mentions, risk information, conspiratorial claims, and claims about false information or fake news. Other message features of interest were revealed during exploratory reading, including the prevalence of commercial promotion, testimonies of personal experiences, and mentions of intuition and gut feelings (see Table S1 for all coded features). After approximately 30 hours of training and practice coding, we conducted two rounds of reliability testing. The sample for both rounds consisted of random draws of posts, which had been identified as related to the topics of interest. In the first round, 68 posts (approximately 12% of the final data set) were coded and achieved acceptable reliability (αs range from .70 to .93) for the following codes: DYOR-disclaimer, DYOR-raising alarms, expert mentioned, risk information, personal experience, promoting a product, conspiratorial beliefs, image contains person(s), and image contains text. After further training, the second round of reliability assessment relied on a random draw of 38 posts (approximately 7% of the final data set), which were coded and achieved acceptable reliability (αs range from .72 to 1) for the following codes which had not reached acceptable reliability in the first round: DYOR-personal agency, information accuracy, and intuition. Full coding information and examples are given in Table S1.

Results

First, we present quantitative information about the prevalence of DYOR messages across topics and platforms. Then, we present the results of group comparisons examining how different message features, such as mentions of experts, conspiracies, and product promotion,

are associated with different DYOR uses. For further information about the content of the posts, see Supplemental Information for a qualitative description.

Prevalence of DYOR uses by topic and platform

Across topics and platforms, the *personal agency* use of DYOR was most common (45%), followed by *raising alarms* (24%) and *disclaimer* (21%), with 9% of DYOR phrases not conforming to any of these uses.[3]

The use of DYOR significantly differed by the topic of the post ($\chi^2 = 46.61$, $p < .001$). Pairwise Fisher's exact tests revealed that posts about reproductive health significantly favored the use of DYOR as a *disclaimer* (33%; $p = .026$, odds ratio = 2.30, 95% confidence interval [CI] = [1.15, 4.60]) and to promote *personal agency* (45%; $p < .001$, odds ratio = 3.79, 95% CI = [1.85, 8.06]), compared to *raising alarms* (17%). Posts about vaccines were less likely to use DYOR as *disclaimer* (6%) than the *raising alarms* use (43%; $p < .001$, odds ratio = .09, 95% CI = [0.03, 0.22]) or *personal agency* use (37 %; $p < .001$, odds ratio = 0.11, 95% CI = [0.04, 0.28]). In posts about food and diets, DYOR was more often used to promote *personal agency* (53%) than to *disclaim responsibility* (27%; $p < .001$, odds ratio = 0.33, 95% CI = [0.17, 0.62]) or *raise alarms* (11%, $p < .001$, odds ratio = 0.12, 95% CI = [0.05, 0.24]).

DYOR posts from Facebook and Instagram had similar rates of DYOR messages that promoted *personal agency* (44% and 46%, respectively, Fisher's exact test: $p = .90$). On Instagram, DYOR messages were more frequently used to *disclaim responsibility* (26%) than on Facebook (17%, Fisher's exact test: $p = .085$, odds ratio = 1.69, 95% CI = [0.91, 3.19]). There was a difference in the prevalence of *raising alarms* DYOR messages between platforms; Instagram posts appeared to use DYOR to *raise alarms* less frequently (20%) than in Facebook posts (29%), but this difference was only marginally significant (Fisher's exact test: $p = .075$, odds ratio = 0.60, 95% CI = [0.34, 1.08]).

See Table 2 and Figure 2 for full results.

DYOR uses and message features

We then investigated what message features were associated with different uses of DYOR messages. As above, we first conducted chi-squared tests to detect differences in the prevalence of coded message features across the three DYOR message uses. Then we explored all pairwise comparisons in the prevalence of coded message features across DYOR message uses using Fisher's exact tests, as in some cases, there were a low number of observations of a message feature for a given DYOR message use. Significant differences between posts with different DYOR message uses are reported below, full results are given in Table 3. Tables reporting the prevalence of message feature by topic and platform are given in the Supplemental Information.

There were significant differences in the frequency of personal narratives by type of DYOR message use ($\chi^2 = 46.11$, $p < .001$). Personal narratives appeared more often in posts using DYOR messages to promote *personal agency* (68%, $p < .001$, odds ratio = 6.91, 95% CI = [3.43, 14.57]) and *disclaim responsibility* (60%, $p < .001$, odds ratio = 4.93, 95% CI = [2.21, 11.43]), compared to *raising alarms* (23%).

Table 2. Descriptive results of DYOR uses by platform.

DYOR uses in all posts (FB and IG), by topic					
Topic	Agency (%)	Alarms (%)	Disclaimer (%)	Other (%)	Total number of posts
Food	53	11	27	8	96
Vaccine	37	43	6	13	99
Reproductive health	45	17	33	5	92
Total	45	24	22	9	287
DYOR uses in Facebook posts, by topic					
Food	42	15	33	10	48
Vaccine	37	47	6	10	49
Reproductive health	55	25	11	9	44
Total	44	29	17	10	141
DYOR uses in Instagram posts, by topic					
Food	65	8	21	6	48
Vaccine	38	40	6	16	50
Reproductive health	35	10	52	2	48
Total	46	20	26	8	146

There were also significant differences in the prevalence of product promotion by DYOR message use ($\chi^2 = 8.45$, $p = .038$). Posts using DYOR messages as a *disclaimer* were more likely to be promoting a product or service (34%, Fisher's exact test: $p = .006$, odds ratio = 3.44, 95% CI = [1.35, 9.43]) than posts using DYOR messages to *raise alarms* (13%). There were no differences between posts using DYOR messages to promote *personal agency* and other DYOR message uses.

There were several message features that were particularly associated with the *raising alarms* DYOR messages. DYOR messages uses were differently associated with the prevalence of risk information ($\chi^2 = 16.46$, $p < .001$), claims about information accuracy ($\chi^2 = 30.86$, $p < .001$), and conspiratorial messages ($\chi^2 = 79.49$, $p < .001$) in social media posts. Mentions of risk were significantly more prevalent (66%) in posts with DYOR messages that *raise alarms*, compared to posts using DYOR messages to *disclaim responsibility* (40%; Fisher's exact test: $p = .005$, odds ratio = 0.36, 95% CI = [0.16, 0.76]) or emphasizing *personal agency* (42%; $p = .002$, odds ratio = 0.38, 95% CI = [0.20, 0.72]). Similarly, mentions of concerns about misinformation were present in 53% of DYOR messages that *raised alarms*, which was significantly more than in DYOR messages *disclaiming responsibility* (15%; $p < .001$, odds ratio = 0.15, 95% CI = [0.06, 0.38]) or promoting *personal agency* (22%; $p < .001$, odds ratio = 0.25, 95% CI = [0.13, 0.49]). References to conspiratorial beliefs occurred in 46% of *raising alarms* DYOR messages, significantly exceeding DYOR *disclaimer* messages (3%; $p < .001$, odds ratio = 0.04, 95% CI = [0, 0.17]) or those promoting *personal agency* (2%; $p < .001$, odds ratio = 0.003, 95% CI = [0.005, 0.100]). The difference between DYOR message uses concerning

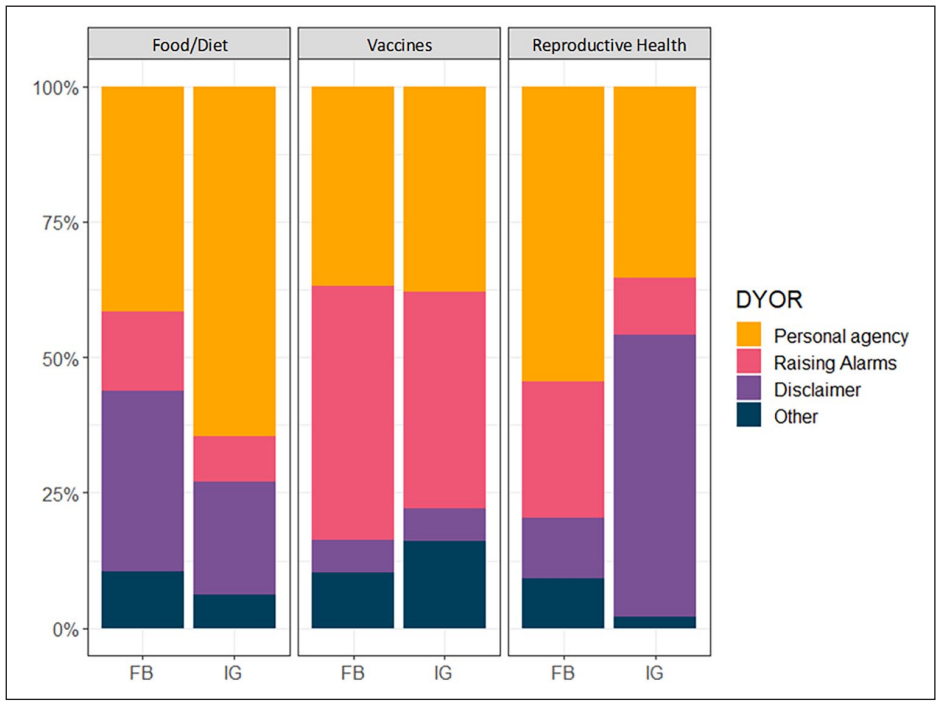


Figure 2. Prevalence of DYOR messages, by platform and topic.

conspiratorial beliefs is particularly striking, given that they only appear in between 2 and 4% of posts that use DYOR messages to advocate personal agency or disclaim responsibility.

We did not observe any differences in the frequency of expert mentions or discussion of intuition and gut feelings across different DYOR message uses.

Discussion

In this study, we highlight the different ways in which people use calls to "do your own research" in social media and conceptualize three different types of DYOR messages. While DYOR is commonly associated with misinformation and conspiracies, the diverse uses reveal nuance in the ways people engage with expert information and navigate a conflicting and overwhelming information environment. We first explore implications of our findings, then discuss how different DYOR messages claim authority and may persuade audiences.

First, we find differences in how DYOR messages were used across topics (RQ1). Social media posts about vaccines were more likely to use DYOR messages to raise alarms, while posts about food and reproductive health were more likely to use DYOR messages to promote personal agency or to disclaim responsibility. Some differences in

Table 3. Frequency of coded features by DYOR use, pairwise compared by Fisher's exact test.

	Within *personal agency* DYOR posts (%)	Within *raising alarms* DYOR posts (%)	Within *disclaimer* DYOR posts (%)	Prevalence across all DYOR posts (%)
Experts mentioned	50[a]	51[a]	58[b]	51
Risk information	42[a]	66[b]	40[a]	46
Personal experience	67[a]	23[b]	60[a]	51
Intuition	7[a]	6[a]	6[a]	7
Promoting products	22[ab]	13[a]	34[b]	23
Claims about information accuracy	22[a]	53[b]	15[a]	28
Conspiratorial claims	2[a]	46[b]	3[a]	14
Total number of posts, by column	129	70	62	287

The frequency of message features appearing in posts with different DYOR uses is reported in percentages (column-wise) and across all posts. The total number of posts by DYOR use is included in the bottom row. For the first three columns (different DYOR uses), frequencies within the same row with different superscripts were found significantly different at $p < .05$ using Fisher's exact pairwise tests. See the Supplemental Information for a full table that includes the prevalence of message features in posts coded for "other" DYOR uses (26 posts).

DYOR uses between issues may be in part due to the time frame in which posts were made, as there was intense public debate about the safety of anticipated COVID-19 vaccines in 2020 and 2021.

Second, we find that Facebook and Instagram showed similar tendencies in using DYOR messages to promote personal agency and raising alarms, while Instagram posts more frequently used DYOR messages as a disclaimer (RQ2). Instagram and Facebook are both popular mainstream social media platforms, owned by the same company, so that, we may see similarities in DYOR uses because the content on each platform may be produced by similar users and subject to similar content moderation goals. However, differences in DYOR disclaimer use reflect known platform differences; Instagram is a very commercialized space (Chinn et al., 2023) and individuals selling products and services may be more likely to encourage individuals to "do their own research" as a disclaimer to avoid responsibility for the consequences consumer behaviors.

Third, we were able to gain greater insight to the meaning of these uses by investigating how different DYOR uses appeared alongside other message features (RQ3). Posts using DYOR messages as a disclaimer were more likely to be promoting a product or service than posts using DYOR messages to raise alarms, suggesting that DYOR messages can be part of a promotional strategy. Individuals promoting products may simply be attempting to avoid liability for any harmful outcomes of promoted products and services by encouraging others to DYOR. However, acknowledging one's own limitations while legitimizing different experiences and views may be a strategy of cultivating credibility and goodwill among one's followers. In this sense, DYOR messages may serve as a warranting cue for audiences, indicating that the messenger acknowledges the

potential error and biases in their claims, and that independent verification is encouraged, thus increasing their credibility as a messenger (DeAndrea and Vendemia, 2019; Vendemia et al., 2019). Warranting theory suggests that information online can be more trustworthy when perceived to be less susceptible to manipulation by the communicator (DeAndrea, 2014; Walther et al., 2009). An invitation to "do your own research" is an invitation to fact-check the poster, which might enhance perceived credibility or trustworthiness of the poster and their message, while placing the burden for doing so on the audience. By emphasizing the potential uniqueness of their own preferences or experiences, individuals promoting products or services may be using DYOR disclaimer messages to engender credibility and perceptions of goodwill among potential customers to increase purchasing behavior.

Personal narratives and stories about firsthand experience appeared more often alongside DYOR messages that promoted personal agency and disclaimed responsibility, compared with raising alarms. This may reflect ambivalence in how individuals perceive the credibility of testimony and navigate asserting their own experience as credible information. This connects with Fricker's (2007) conception of testimonial injustice as a form of epistemic injustice which, "occurs when prejudice causes a hearer to give a deflated level of credibility to the speaker's word" (p. 1), that is, when stereotypes or discrimination diminish the perception of one's capacity to know. On one hand, the combination of personal narratives with DYOR disclaimers may draw attention to the posters limitations in a way that reflect internalized devaluing of one's testimonial credibility. Indeed, DYOR was most frequently used as a disclaimer in posts about reproductive health, a medical domain in which patients often face dismissal of their symptoms and concerns (Cleghorn, 2021). However, narratives are also used alongside the personal agency use of DYOR, which acknowledges the importance of independent information seeking to make the best decisions for one's personal circumstances, even when they differ from others' views. In this context, the DYOR message may legitimize personal testimony and empower individuals by modeling achievable behaviors and decision-making. Research on online patient communities finds that stories about others' experiences can increase perceptions of self-efficacy (Willis, 2016), which motivates actions like information seeking or undertaking behavioral change (Bandura, 2006; Eriksson-Backa et al., 2018). Personal narratives that show others taking certain actions, as well as encouragement and social support from others online, may increase confidence in one's ability to navigate complex and confusing topics.

This association also echoes messages of anti-vaccine and vaccine safety advocates, who often consider lived experience and maternal instinct to be as important as expert advice in decision-making for their families (e.g. Carrion, 2018). As in studies of vaccine-skeptical groups, DYOR messages promoting agency and sharing personal experience often did not explicitly reject expertise, but rather shared studies and experts favorable to their positions (Cullinan et al., 2024; Goldenberg, 2021) and offered individual experiences as alternative or additional information (e.g. Carrion, 2018). These messages use normative appeals to self-education and informed decision-making to promote ideas about relative truths grounded in experience that are sometimes, but not always, at odds with scientific evidence and expert recommendations. In this way, while DYOR messages that promote personal agency do not explicitly reject expert advice,

they often implicitly communicate a distrust of institutions. They imply that individuals should rely on themselves to determine what information is accurate and make the best choices for their situations.

Finally, it was clear that the raising alarms use of DYOR messages was, in this data set, associated with concerns about risk and misinformation, and often included allusions to conspiracy theories. This could be because the data were collected during the first year of the COVID-19 pandemic, a period marked by high levels of uncertainty, anxiety, and upheaval in the United States. Indeed, the raising alarms DYOR message was most observed in posts about vaccines, which were often about (at the time) novel COVID-19 vaccines. This DYOR message was often used alongside explicit discussions about misinformation and fake news, and posters often sought to serve the function of a watchdog by bringing public attention to institutional abuses and corruption. While this use co-occurred with conspiratorial content more than the other uses, it was not exclusively used to share conspiracies about COVID-19 vaccines. For example, some posts used this DYOR message to raise awareness about the negative healthcare experiences of Black mothers seeking maternal care. This use often expressed explicit distrust of institutions and expertise and warned of the harms sometimes done by these institutions in attempt to raise awareness and help others.

This classification of DYOR messages is not only useful to understanding how these messages claim authority, but also for providing insight into how or whom they may persuade. *Raising alarms* DYOR messages often explicitly claim that institutions are corrupt with nefarious intent, implying that ordinary people are more trustworthy authorities. These messages may appeal to audiences that are active but mistrustful of institutions; research suggests these "alarmed citizens" engage with both traditional and alternative news to fulfill information needs (Thorbjørnsrud and Figenschou, 2022), and thus may be receptive to alarmist messages from alternative sources and rogue experts encouraging this critical view (Goldenberg, 2021). *Personal agency* DYOR places authority for discerning truth in the hands of individuals; though acknowledging that institutions are not necessarily bad, individuals' judgment is implied to be a higher expertise. These messages may aid in sense-making by contextualizing information with personal experiences (Feinstein and Baram-Tsabari, 2024). Individuals are more likely to believe information they find themselves (Marwick and Partin, 2024) and messages affirming this process may be viewed as credibility and empowering, which can facilitate persuasion. In another way, *disclaimers* appear to explicitly recuse authority, deferring to experts and institutions which are implied to be a superior source of information. However, by inviting others to verify claims and denying prescriptive intent, these messages could increase message credibility and reduce psychological reactance by serving as a warranting cue (DeAndrea, 2014). In this way, DYOR *disclaimers* may, in fact, lend authority and persuasive appeal to the messenger.

Strengths and limitations

It is also important to note limitations. First, the final sample of coded posts was relatively small ($N = 287$). Though we sampled across science topics with varying degrees of politicization, DYOR may be used in other ways in content about other issues like

cryptocurrency or finance. Second, we chose to code posts that received the greatest engagement; posts with greater engagement tend to receive wider circulation, so that, these posts may reflect commonly encountered types of DYOR messages. However, our sample is not random and not all our posts were highly engaging (see the Supplemental Information for engagement and follower count information), so that, this limits generalizability. Third, we only analyzed content from two platforms, Instagram and Facebook, and cannot speak to how DYOR is used on platforms with other features, such as video-primary content (e.g. TikTok, YouTube) and character limits (Twitter/X), different ownership and content moderation practices, or in more private digital spaces (e.g. WhatsApp groups). Fourth, while most of the posts used DYOR messages in the body of the post (86%), some posts exclusively used DYOR in hashtags. We did not compare DYOR uses between text and hashtags given the small number of posts that exclusively used a DYOR hashtag. Fifth, we collected posts made between March 2020 and February 2021, as this was a time in which DYOR messages were receiving more public attention and broader circulation than in the past. However, given that part of the reason DYOR messages received public attention at this time was because they were sometimes made by QAnon supporters sharing conspiracy theories involving COVID-19 and vaccination, it may be that our findings reflect more *raising alarms* uses of DYOR messages than were typically used, or that contemporary perceptions of DYOR as associated with misinformation altered its usage in other domains. Though we coded whether posters made claims about fake news or misinformation, we did not fact check all the posts to evaluate the veracity of each claim. Thus, while we have examples of *all* DYOR uses promoting both accurate and inaccurate information, we can only speculate about the relative frequency of accurate and inaccurate information shared with different DYOR uses. Finally, we did not examine audience responses to the posts or DYOR messages, and further research should explore whether DYOR messages encourage seeking of more accurate or attitude-congruent information.

Implications

The phrase "do your own research" can serve different functions that may reflect varying attitudes toward expertise, concerns about the quality of information, and suggested actions to address these challenges. Calls to "do your own research" are used to encourage people to fact-check messengers, become informed about a wide range of views and experiences, and to serve as a watchdog on public institutions. At times where public institutions are perceived to be failing to serve the public interest, these calls reflect can normative and democratic sentiments of being well informed as well as mistrust institutions and experts. DYOR messages may empower individuals by promoting self-efficacy in an overwhelming information environment (Bandura, 2006; Cotter and Thorson, 2022; Willis, 2016), and they also place the responsibility for navigating an abundant information environment squarely on the individual and often communicate implicitly or explicitly that institutions and experts may not be trustworthy sources of information and advice. Practically, individuals lack resources to fact-check all of the information they encounter and may be likely to default to heuristics and biases which align with their worldview and values. The varied uses of DYOR messages in social media reflect this ambivalence.

Importantly, DYOR messages reflect a range of attitudes and behaviors concerning information credibility and trust in expertise; it is vital therefore not to over-generalize the slogan as *solely* indicating extremist and conspiratorial beliefs. Discounting DYOR and the diverse motivations for seeking additional information can increase social divisions around expertise and institutions (Chinn et al., 2024). Mockery of those who died from refusing vaccinations with Halloween gravestone decorations inscribed with "I did my own research" (Grace, 2021) reduces heterogeneous and often prudent motivations for information seeking to extremist and conspiratorial groups. Not only is this an impudent approach for strategic communication that can increase mistrust around science, politics, and health (Yuan and Lu, 2020), but also failure to recognize that individuals have valid reasons for being skeptical of institutional information may reinforce social inequities around who is a legitimate producer and holder of knowledge and who has social agency and power (Cleghorn, 2021; Fricker, 2007).

Finally, DYOR may also serve as a persuasive strategy. Some DYOR messages appear to offer agency and encourage fact checking in ways that may increase perceived credibility of the source and reducing reactance in audiences (Brehm, 1966; DeAndrea, 2014). While DYOR can lead to misinformation through biased information processing or reliance on existing views (Chinn and Hasell, 2023), many of the messages we observed in these analyses promoted empowerment and agency and did not exclusively spread misinformation. Researchers and practitioners should further investigate whether and how these messages persuade or promote information seeking, particularly among those who may be hesitant to trust traditional information sources. By strategically using DYOR messages, journalists, public health officials, and science communicators may be able to encourage responsible information seeking among skeptical or unengaged audiences by offering agency and signaling openness to feedback and criticism (McComas, 2006). In these ways, insight into the varied sentiments that DYOR messages share about expert attitudes and informational concerns not only reveals nuance and depth in public consideration, but also provides opportunities for understanding and engaging with different publics' concerns.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. CrowdTangle is no longer available as of 14 August 2024.
2. A small number of posts referred to "doing your own research" in a metatextual way (e.g. explaining how one should go about doing their own research in response to the viral use of the slogan) or in a satirical or humorous way, but these uses were rare in our sample and not frequent enough to analyze.
3. Posts received an "other" code for the DYOR phrase when its meaning was not clear to the coders or it was clearly being used in a different way, such as metatextual uses explaining how one should go about doing their own research. Twenty-six posts (9.1%) received this "other" code.

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