OBGYNs of TikTok and the role of misinformation in diffractive knowledge production

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Abstract

Health misinformation on social media has largely been examined from a harms-focused perspective, with scholars seeking to identify what impacts misinformation has on public health and a popular focus on removing it from platforms. The act of debunking is one response wherein misinformation is corrected with knowledge from scientific sources. To date, little research exists examining how experts and the public engage with misinformation beyond a focus on harm. Using Karen Barad's concept of diffraction, we examine the iterative relationships between misinformation, obstetrician-gynaecologists[1] (OBGYNs) and the educational content they generate on the short-form video platform TikTok. Though misinformation and debunking content have been seen as oppositional, they are brought into productive dialogue with one another using diffractive techniques and platform affordances. We conclude that through the educational content created by the OBGYNs

[1] Obstetrician-gynaecologists are specialst medical doctors whose focus is reproductive health, pregnancy and childbirth.

of TikTok, misinformation becomes diffractively integrated into debunking content and is generative of new knowledge, rather than cleansed away.

Keywords: TikTok, misinformation, diffraction, sexual health, digital health

Introduction

With more entertaining and inclusive offerings, health education content on social media has become a significant trend. In particular, content focused on sexual health, created by both healthcare professionals and laypeople, has become widespread across platforms such as Instagram, TikTok and YouTube. This momentum has picked up alongside the growth of the 'wellness' phenomenon more broadly, which is now a 1.5 trillion dollar (US) global industry of products and services that promote health, fitness, nutrition and other forms of 'self-care' (Callaghan *et al.*, 2021). At the same time, concerns about misinformation and potentially dangerous health-related trends on social media have also intensified as 'wellness influencers' position themselves as educators and lay health experts (Hendry, Hartung and Welch, 2021; Heřmanová, 2022). In the wake of the COVID pandemic, vaccine hesitancy has increased (de Albuquerque Veloso Machado *et al.*, 2021), with some influencers criticised for promoting anti-vaccine conspiracies (Heřmanová, 2022). The spread of misinformation has created an opportunity for health practitioners on social media to take an active role in responding to misinformation, creating content designed to debunk viral myths and provide compelling warnings to audiences about the potential dangers of these practices.

In the context of health misinformation, misinformation is defined by its opposition to the consensus of what the medical community defines as accurate and evidence-based (Swire-Thompson and Lazer, 2019). Misinformation is therefore defined and understood through its binary opposition to credible information. While scholars have examined the harms of misinformation (Crocco, Villasis-Keever and Jadad, 2002; Loomba *et al.*, 2021), there have been few nuanced explorations of misinformation and

how people might engage with it beyond identifying its potential harms. Given the complex entanglements between misinformation and de-bunking content — what is often thought of as 'credible' or correct information informed by scientific evidence — created by health professionals, we argue these nuances are important to attend to. We are particularly curious about how misinformation is implicated in the performance and construction of so-called 'credible knowledge' (created and communicated by recognised health professionals) and knowledge-making practices in social media spaces. While misinformation and debunking content may be broadly conceived in opposition to each other along the dualisms of 'true' and 'false' information, we remain curious about how multiple knowledges are produced and circulated in social media spaces and how these knowledges relate to each other.

To address this curiosity, we examine the phenomena of debunking as an aspect of gynecological 'edutainment' — content that focuses on sharing information about vaginal and vulva health in informative, accessible, and entertaining ways as it is created and circulated on the social media app TikTok. Specifically, we attend to the interplay between expert content creators (OBGYNs and other trained sexual health workers) and other circulating misinformation within the platform through which new 'debunking' content is created. Using digital ethnographic methods, we focus on content creators working within the gynecological health space to examine the interplay, overlap and tensions that emerge between 'expert' voices and misinformation. Guided by the concept of diffraction (Barad, 2007), our analysis explores debunking content as it emerges through complex and iterative relationships between misinformation, health experts and the educational content they generate on TikTok. Diffraction in the Baradian sense refers to the critical practice of reading insights, intellectual traditions and texts 'through one another' in a creative, responsive performance of meaning-making and knowledge production (Barad, 2007, p. 30). We argue that, though there has been a tendency to see these perspectives as oppositional, they are brought into productive dialogue through specific

techniques used to effectively engage audiences, build communities and develop rapport on the TikTok platform.

In what follows below, we first provide an overview of current literature examining health misinformation and the role of social media, TikTok in particular. We then explain the process of 'debunking' and explore how it is understood within health communications literature. This is followed by a description of our conceptual and methodological approach. Specifically, we explain how we take up Barad's concept and process of diffraction to interrogate how OBGYN experts create content on the platform in response to circulating misinformation. We then outline our digital ethnographic methods and present our analysis and discussion. Our conclusions highlight how interactions between interrelated communities can create conditions for new and generative spaces in which knowledges about bodies, anatomy and sexuality can be debated, contested and created.

TikTok and health misinformation

TikTok[2] is a short-form video creating and sharing app that has rapidly grown in popularity in the last few years. TikTok is known for viral video content that uses elements such as lip-syncing and dancing. Demographically TikTok users are young, with 28% global users under the age of 18 and over 60% of users under 30 (Iqbal, 2022). The videos are usually short in length, ranging from 15 seconds to 10 minutes, with shorter videos being most common. There is a strong focus on meme-making, especially audio memes where users re-create videos using the sounds from others videos (Abidin, 2021). TikTok is organised largely by hashtag and if the user selects a hashtag you can see a selection of videos with that hashtag (Kaye, Chen and Zeng, 2021; Kaye, Zeng and Wikstrom, 2022). However, users can also sort videos by sounds, and see other videos that use the same sound. A central feature of TikTok is the 'For You' page, which is the feed that users will see when they open the app. This feed of videos is algorithmically curated for the user, based on the user's past browsing, viewing and

[2] TikTok is the internationally available version of Chinese app Douyin. However, the two apps are distinct and we will be referring to TikTok as that was the app that we studied.

interactions with videos, and this proprietary algorithms success in offering relevant content to the viewer is considered to set TikToks apart from other platforms on the market (Kaye, Zeng and Wikstrom, 2022).

TikTok's rapid rise in popularity has coincided with the spread of the COVID-19 pandemic, with COVID-related content circulating widely on the platform and significant concerns being raised about the platform becoming a hotbed of misinformation (Grierson, Milmo and Farah, 2021). The platform has emphasised that they are taking steps to mitigate the spread of COVID-19 related misinformation on the platform, boasting the removal of over 250 000 videos that contained misinformation on the platform (TikTok, 2021). However, the platform has also developed a strong culture of activism and advocacy, particularly fuelled by it's young userbase (Kaye, Zeng and Wikstrom, 2022). As Kaye, Zeng and Wikstrom (2022, p. 137) explain, the specific capacities of the platform present unique opportunities and challenges for disseminating information and political organising:

> On the one hand, TikTok's meme-drive platform logic encourages the collective participation and empowerment of content creators. On the other, the efficacy of TikTok-based activism can be undermined by free-riders and by the platform's agenda-setting practices.

Looking at climate activism specifically, Hautea, Parks, Takahashi and Jeng (2021) argue that the affordances of the platform — *visibility*, *editability* and *association* — facilitate the creation of unique activist content oriented around personal narratives and affective connection. As digital sociologist Jenny Davis (2020, p. 11) explains, these 'affordances refer to how objects enable and constrain', so a platform's affordances can create the conditions in which particular actions are much more appealing (or much less appealing) because of the design of the interface. TikTok's platform affordances all shape the platform cultures, and the ways information (and misinformation) circulate.

Even before the pandemic, health-related content had become popular on the app, with healthcare workers from a range of different professions creating educational content both based on their speciality and more general advice (Southerton, 2021). An emerging scholarship exists exploring the circulating health information on TikTok, both from a focus on creators and consumers. This scholarship has primarily focused on two key areas: evaluating the accuracy of the information provided (Basch, Hillyer and Jaime, 2020; Basch *et al.*, 2021; Li *et al.*, 2021; Song *et al.*, 2021) and exploring the themes of the content and techniques used by healthcare workers to share health information on the platform (Fowler *et al.*, 2021; Southerton, 2021; Stein, Yao and Aitamurto, 2022).

Research examining the quality and accuracy of the health information on the app has sought to establish the potential public health benefits of using TikTok to disseminate health information, with a particular interest in the kinds of content that get the most engagement. For example, Li and colleagues' quantitative study of COVID-19 messaging on the app argued there was significant potential to disseminate public health messages following an examination of 331 videos in May 2020. They found that dance videos received the most shares, and videos focused on COVID-19 susceptibility and severity had higher user engagement. Song and colleagues' study exploring the quality of information about Chronic Obstructive Pulmonary Disease on TikTok found information satisfactory, despite the variability between who creates the content. The study found that non-profit organisational accounts were the most reliable, compared with accounts created by individuals. However, the study did find individual accounts run by science communicators or health professionals were more reliable than accounts run by individuals with no specific expertise (Song *et al.*, 2021).

In seeking to explore the opportunities and challenges of health communication on TikTok, scholars have also examined how creators of this content mobilise the affordances of the platform to engage their audiences (Fowler *et al.*, 2021; Southerton, 2021; Stein, Yao and Aitamurto, 2022). Fowler et al.'s (2021) study of sexual health content on the platform found popular genres included many topics

traditionally excluded from mainstream sexual health education taught in schools (e.g. LGBTQ+ sexual health, gender fluidity, intimacy and relationships, or sexual pleasure) or were a critical discussion of the limitations of this mainstream education. These findings align with research on online sexual health education more broadly. This research has emphasized the capacity of social media platforms to offer a sense of anonymity and confidentiality to young people when seeking information about sensitive topics (Cohn and Richters, 2013; Evers *et al.*, 2013), as well as diversifying the voices privileged in sex education (Byron, 2015; Manduley *et al.*, 2018). Southerton (2021) extends these insights in her study of healthcare workers who create educational content and have a substantial following on TikTok. Southerton articulates how creators cultivate intimacy and a sense of bringing audiences 'behind the scenes', alongside uses of their 'expert' voices to connect with their audiences. Similarly, Stein and colleagues (2022) study of sexual health content creators, focused specifically on obstetrics and gynecology doctors creating content on the platform and found that creators cultivated relatability and drew on the platform-specific affordances of TikTok (such as the duet feature and audiomemes) to connect with their audiences.

This article seeks to contribute to and extend emerging literature about how health information is generated and circulated on TikTok, particularly sexual health and gynecological information, and focuses specifically on misinformation and debunking content. While the prevalence of fact-checking and debunking content has been noted in previous scholarship (Southerton, 2021; Stein, Yao and Aitamurto, 2022), limited in-depth interrogation exists into the techniques content creators employ when engaging with and responding to misinformation on TikTok in the health information space. We seek to develop an account of how misinformation is used by health educators as part of their educational content creation. Prompted by widespread concern about misinformation, our research asks: how do health educators and experts on TikTok engage with misinformation and what processes are employed in their responses? Our interest exceeds the desire to identify or replace misinformation with 'correct' information. Rather we are concerned with the potentially creative

responsive processes involved in acts of debunking and with what misinformation might 'do' when imagined beyond a harm-focused framework.

Misinformation, debunking, and the art of persuasion

The proliferation of misinformation or what the World Health Organization (2020) calls the 'infodemic' has received heightened attention in the context of the COVID pandemic as inaccurate information (e.g., information not grounded in scientific evidence) about everything from mask-wearing and vaccines has circulated rampantly. While the COVID crisis has illuminated the 'problem' of misinformation, the production and spread of health-related misinformation is not unique and has played out in devastating ways in the context of HIV, for example (Calabrese, Mayer and Marcus, 2021). In response, efforts are made by health officials and other influential bodies to 'debunk' such information, where debunking refers to the communication of 'factual messages which seek to rebut inaccurate factual claims' (Sippit, 2019, p. 7). Importantly, the term and process of debunking are themselves contested, with some experts in the area of health misinformation suggesting it overlooks the need to listen to and engage meaningfully with the concerns of the public and can take on a mocking tone (Caulfield, 2020). Nevertheless, there is consensus that misinformation needs to be countered in some way and extensive literature exists examining how and if 'debunking' works (see Caulfield, 2020 for a summary).

Some strategies have been identified as effective, including using facts from trustworthy and independent sources and providing clear, straightforward and easily shared content (Bode and Vraga, 2015; Yammine, 2020). It is also important to convey the information kindly and to avoid shaming people (König and Jucks, 2019), and research suggests information that is perceived to come from an authentic individual who is not speaking for or attached to an institution can increase the trust and persuasiveness of the message (Saffran *et al.*, 2020). The use of narratives and stories also helps

compellingly convey information as people respond to narratives on a more emotional level (Dahlstrom, 2014; Caulfield *et al.*, 2019).

Much of this research looks at *what* is said and seeks to quantify the effects of various strategies, while less has examined the intangible aspects of *how and why* these tactics work. In a meta-analysis of attempts and strategies to correct misinformation, Walter and Murphy (2018) found that providing alternative explanations to misleading information helped create coherence and was more effective than strategies that relied on fact-checking and appeals to credibility. Other studies have explored the way consumers evaluate online health information, with several finding that how complete or comprehensive the message is, may be more important than the perceived expertise or credibility of the source (Dutta-Bergman, 2004; Poorisat *et al.*, 2019). Scholars have also examined the relationship between health information and consumers' behavioural intentions, finding that they are significantly impacted by the context of the information — which may involve the website or social media network, the digital community within it and salient popular discourse at the time (Hu and Sundar, 2010). When consumers do evaluate credibility, medical credentials are important, but laypeople with similar health concerns may also be seen as highly credible (Hu and Sundar, 2010).

The above literatures point to existing tensions and debates around what forms of information are considered legitimate and trustworthy. However, we identify an important tension in the underlying binary logic that frames these discussions. Specifically, informal and user-generated knowledges, such as those circulating in the TikTok health community, are generally positioned as unfavourable and broadly categorised as ‘misinformation’ whereas knowledge coming from medical sources is considered, in blanket terms, as factual. Such thinking reflects what Foucault (1980) refers to as ‘regimes of truth’, where some forms of knowledge are legitimised over others. Foucault emphasised that what generally becomes accepted as the ‘truth’ is always contingent upon specific power

relations and socio-political-historical contexts. He further argued the negotiation of truth is, in fact, a battle about 'the status of truth and the economic and political role it plays' (Foucault, 1980, p. 132).

In this paper, we extend this thinking and further suggest the dichotomy between 'factual' and 'misinformation' limits understanding of the socio-material processes through which all knowledge is produced and the power relations at play. It also forecloses considering what 'misinformation' prompts and the ways it becomes implicated in the production of new forms of knowledge through debunking practices. In this paper, we interrogate this assumed dichotomy, and explore how, in responding to 'misinformation' content, creators actively engage with those knowledges circulating on TikTok to actively create 'new' forms of information used to 'debunk'. In doing so we highlight the process of debunking as an active, creative form of knowledge production that responds to 'misinformation' rather than foreclosing it. We further explore how the specific capacities of the TikTok platform enable these processes of negotiating and making knowledges.

Debunking as diffraction

Our paper is broadly concerned with the processes of knowledge production and information dissemination as it relates to discussions of misinformation within social media spaces. Drawing on feminist scholars under the umbrellas of science and technology studies and new materialisms, we engage with the concept of diffraction to explore how knowledge production is what Karen Barad (2007) describes as an agential act. In an attempt to disrupt representational ontologies that see knowledge as an object that exists 'out there' to be discovered and used by human actors as a means to an end, Karen Barad, a quantum physicist, borrows heavily from feminist science and technology scholar Donna Haraway to argue knowledge is always produced through the relational encounters between social and material forces. In this arrangement, knowledges are always multiple and situated, and human actors are never 'outside' of knowledge-making processes rather, 'practices of

knowing are material engagements that participate in (re)configuring the world' (Barad, 2007, p. 83 italics in original).

This onto-epistemological position, which Barad names as agential realism, acknowledges the continuously shifting and deeply material processes through which knowledge is produced and illuminates the ontological problems inherent in claims of truth. To further explore these processes, Barad (2003, 2007), again inspired by Haraway (1992, 1997), offers the concept and metaphor of diffraction to examine and analyse knowledge-making practices. Diffraction is offered in place of reflection, which suggests a fixed referent that can be mirrored and reflected back. Instead, diffraction assumes nothing, especially knowledge, is fixed. Barad elaborates this idea from the classical physics phenomenon that occurs when a wave (or multiple waves) encounters an obstacle in its path and disperses, or diffracts, into new patterns. Haraway and Barad use this concept and material process to examine how knowledge is continuously actively produced. Haraway argues '[d]iffraction is a mapping of the interference, not of replication, reflection, or reproduction' (1992, p. 300). Barad further suggests diffractively engaging and reading different forms of knowledge and intellectual traditions 'through one another' (p. 30) produces new unexpected outcomes.

Within this diffractive process, the 'old' or what comes before, is never foreclosed or rejected but is re-used, re-thought, and 'diffracted' in unpredictable ways. As Haraway insists 'diffraction patterns are about a heterogeneous history, not originals' (2000, p. 101). The 'old' waves always live in the new diffracted patterns but are reconfigured and regenerated. There exists no original or fixed knowledge, only ongoing processes of knowledge production. Similarly, there exists no clearly bounded truth or untruth, information or 'misinformation', rather multiple forms of knowledge are negotiated, transformed and produced through encounters with material and social configurations of power.

These ideas are important for our discussion as the relationship between information and misinformation is grounded in rational ontologies that position misinformation in a dialectic or binary relationship. However, following Barad, we examine the content created by healthcare professionals as produced through diffractive processes of knowledge creation. In doing so, we unsettle the binary assumed between information and misinformation and instead trace the 'interferences' and diffractive patterns that unfold as health care providers respond to so-called 'misinformation' in creative, embodied, and affective ways that yield new forms of information and knowledge.

Methodology

Seeking to explore knowledge-making practices in the sexual health education spaces on TikTok, we conducted digital ethnographic fieldwork over four months on the app, from September to December 2021. We opted to undertake ongoing observation on the app, rather than a content analysis of a sample of TikToks from a selection of hashtags to develop a 'messy' and flexible method that suited the platform. TikTok can present a methodological challenge for researchers seeking to 'carve out' a distinct research project because it has a somewhat opaque organisation, lacking the structure of 'groups' or 'pages' like Facebook. A further challenge is that the algorithmic personalisation of content returned in search results means that there is no way for an ethnographer to attempt to 'remove' themselves from their data, as even a new account will be served personalised content based on data collected from the device using the ap (e.g., time zone, type of device and demographic information) (TikTok, 2022). In this sense, you and your 'data double' are always already entangled in your 'For You Page' (FYP) (Haggerty and Ericson, 2000). In developing our research methods, we sought to embrace these challenges as an opportunity to experiment rather than see these as an obstacle to obtaining 'clean' data.

Our approach drew inspiration from Sarah Pink and colleagues (2015, p. 11) work on digital ethnography, in which they argue for attention to be paid to 'how the digital has become part of the

material, sensory and social worlds we inhabit, and what the implications are for ethnographic research practice'. As we found throughout our digital ethnographic observation, the tangibility of communities and topics on the platform are often *felt* through subtle senses, through shifts in affective tone, shared in-jokes and trends, rather than readily captured in a hashtag (Southerton, 2021). Although hashtags are used as an organising device, hashtags serve many functions on the app and unrelated hashtags may be used to draw attention to a video (Ling *et al.*, 2021). Preferred hashtags for communities also change often — especially in response to content moderation and censorship or even perceived censorship, which is certainly a relevant concern for communities such as those discussing sexual health as is the case here (Southerton *et al.*, 2021).

From September to December 2021, we undertook weekly sessions ranging from 30-60 minutes of browsing the app, starting with a range of relevant search terms (obgyn, sexual health, sex ed) and reviewing the videos that appeared during these searches. It is important to note that though some of the hashtags, and some of the content used terminology such as 'women's health' or 'pregnant women', many of the creators also used more inclusive terminology that reflects the reality that not all pregnant people are women and not all people with vulvas are women. We then used the hashtags on the videos to identify additional relevant content and creators.

We took detailed notes during our observations and saved some videos throughout the process to aid with memory recall (Abidin, 2021). High-profile accounts were also identified belonging to OBGYNs or sexual health nurses. As part of our fieldwork, traced the creators across their multiple social media platforms and reviewed their back catalogues of TikToks. We also engaged in interactions with content, inspired by Crystal Abidin's (2021, p. 78) method of experimenting with the platform's algorithmic triggers through 'selectively following/unfollowing and liking/unliking posts.' We also focused on the specific affordances of TikTok as a way to explore the community, using the ability to click on the sound in the videos and see other videos using that sound to more fully understand audio-memes being presented. We traced 'Stitches' and 'Duets' (videos in which one content creator

will combine their video with another video to be in dialogue with that video) back to the original video, which also allowed us to view many videos containing misinformation that health professionals were correcting.

Only content from public accounts was included in this study. However, we also evaluated content contextually to ensure videos that may inadvertently or unintentionally reveal personal information about the creator were not included in our findings (for discussion see Highfield and Leaver, 2016). In our findings we draw on examples from accounts with significant followings, ranging from 300 thousand to 2.8 million, with the purpose of both focusing on content that reached a significant audience and ensuring this content was intended for public consumption, rather than private or personal networks. Unfortunately, this has meant our findings are focused on US-based creators who tend to have the largest followings in this community, and this is a limitation of the study. We have elected to identify creators by their real names and usernames throughout this paper, to credit them for their labour. Anonymising them within our findings would not allow us to do (see for example Southerton, 2021).

Diffractive Techniques Used by the OBGYNs of TikTok

The OBGYNs we observed used a range of techniques to address misinformation by integrating it into their content in ways that allowed them to respond to debunk the content in educational and entertaining ways. In doing so, whilst also demonstrating an awareness of the pervasive myths circulating in contemporary discourse that their followers may be consuming both on app and beyond. In this section, we will explore the techniques engaged by content creators and the platform-specific tools they employed to layer, integrate, and respond to misinformation into their own content in generative ways for educational purposes.

Response and Reply

One of the most common ways creators encounter and debunk misinformation is by responding to direct queries from their audience. They will often do this using the video comment reply function. For example, if they receive a comment on a previously created TikTok in which the commenter expresses an opinion or shares content based on incorrect information or queries information they received from another source, creators can reply to the comment directly by creating another TikTok. This facilitates a dialogue directly from the comment: the video reply appears underneath the original comment, as a link, and the comment is visible as an image at the top throughout the response video.

Dr Staci Tanouye (@dr.staci.t), a US-based OBGYN with 1.5 million followers on TikTok (as of May 2022), frequently uses this format to respond to queries from her followers and correct misinformation. In one TikTok posted in April 2021 that has garnered 70.1 thousand views (as of May 2022), she responds to a query from a follower who asks her about possible contraindications between melatonin and Saint John's Wort, and their IUD (intrauterine device). The follower shares that they saw another TikTok that reported these supplements negatively impact the effectiveness of IUDs. In response, Dr Tanouye, created an ad-hoc style video in her office with medical equipment visible in the background and states there is no interaction. She goes on to back up her statement with specific details explaining that IUDs work by sitting in the uterus and any hormones from the IUD do not rely on metabolism for their effectiveness and thus will be unaffected by these supplements that are metabolised. She uses accessible language to explain 'how things work' rather than just dismissing the misinformation. Her tone was more reassuring than combative, and her response acknowledged the genuine concern expressed by her audience while providing sufficient detail and expertise (through her setting) to compellingly 'correct' the myth.

Stitches

Another platform function creators commonly use to put themselves in direct dialogue with misinformation is TikTok's 'Stitch' function. This function allows users to create a video that integrates

some or all of another user's existing TikTok. The newly created video acts as a reply or reaction to the first video and puts them in direct dialogue with one another. While some stitches straightforwardly debunk the content they are stitched with, sometimes creators add nuance or an expert voice to a topic that is trending and relevant to their expertise. For example, in October 2021 US-based OBGYN Dr Danielle Nicole Jones (@mamadoctorjones), who has 1.2 million followers on the platform, created a TikTok by stitching with another creator's (now deleted video) in which the creator expressed disgust at the idea that vulvas that would smell 'like anything but water'. In the stitched TikTok (which as of May 2022 has 6.4 million views), Dr Jones uses both dead-pan humour and her gynaecological expertise to respond. She first jokes that the individual in the video was quite dirty in appearance despite expressing such high standards of hygiene, before proceeding to explain that it is not physiologically normal for parts of the body to smell like water. Although the original video may not initially appear as 'misinformation' as such, it is still reproducing potentially harmful ideas about normative expectations. By responding to these problematic ideas, a space is created for Dr Jones to generate content for her audience about normal vulva odour that contributes to broader conversations about bodies, shame, and sexuality. Similar to the 'response and reply' technique described above, the stitching function allows educators to actively engage with misinformation in a generative way. Rather than simply labelling information as 'untrue' and dismissing it, the OBGYNs engage with it diffractively, reading it through their own expertise and through the lens of their audience. In this way multiple forms of knowledge or sources of information are read through and in relation to one another, to create something new (Mazzei, 2014).

Duets

Duets comprise another platform function that creators use to bring misinformation directly into dialogue with their content. In a Duet, the creator pairs their video alongside another user's video side by side to show their reactions and commentary to the original video. This is commonly used in debunking TikToks, as this allows for ongoing correction as well as allowing for the creator's

expressive reactions to the misinformation. These can be mobilised for humour but also for outrage and other kinds of emotional expressions that contribute to the way their messages are conveyed. In a TikTok posted in May 2021 (with 288.4 thousand views as of May 2022), Dr Jennifer Lincoln (@drjenniferlincoln), another US-based OBGYN who has 2.8 million followers, used the duet function to critique a TikTok posted by a cosmetic surgeon outlining cosmetic surgical interventions available for people with vulvas, for the purpose of increasing sexual pleasure. She shows his TikTok on the right and her reaction on the left, rolling her eyes and expressing frustration, as text appears on the screen that disagrees with his claims. Her TikTok is hashtagged with #misogynisticmen #misogyny #mythbusters #doctorsoftiktok, and she explains in the video why his commentary prioritises male pleasure.

This TikTok also demonstrates a trend we observed among gynecological educators on TikTok: debunking misinformation as a practice coming from *within* the medical community. This work was an important part of the way OBGYN creators positioned themselves as both familiar with existing limitations and biases within biomedical knowledges and healthcare and actively working against them. Though they built rapport through their expertise, they also emphasise the ways their audience should be critical not expert sources, and use techniques such as posting their sources and quoting directly from scientific research to differentiate themselves from other healthcare experts who spread misinformation. These practices demonstrate and encourage audiences to reflect on the ways distinctions are not neatly demarcated between ‘experts’ and the ‘uninformed’ who spread misinformation. This practice of critique from within the community is also an important example of a diffractive technique, which involves reading different knowledges through one another so that 'new' knowledge or information emerges. Here, existing knowledge from one discipline within the medical community is read and filtered through knowledge from another to produce something 'new' in the form of debunking content. The original content is not simply dismissed or denied, but rather engaged with and diffracted in efforts to provide more nuance for the audience.

Green Screen

Creators also use the 'Green-Screen' functionality to overlay their TikTok over screenshots or footage from other creators to engage in dialogue with other content on the platform, when they choose not to stitch. Using screenshots or featuring a video from another video without using the stitch function can be a way to informally stitch a video, without linking directly to the video. This may be to avoid directing clicks back to a TikTok, for a range of reasons. For example, Dr Staci Tanouye (@dr.staci.t) used this technique in a TikTok she posted in August 2021 (677.2 thousand views as of May 2022), where she commented on a misleading TikTok promoting organic menstrual cups and tampons on the basis that toxic shock syndrome (TSS) is caused by the 'chemicals' in menstrual products, which she plays without sound using the Green Screen function behind her. She describes the video as 'entirely incorrect' and states that 'TSS is not caused by the chemicals in tampons', and goes on to explain how TSS is caused. She ends the video by concluding that 'this is cap', using African American slang common on the platform where 'cap' means untrue (Carey, 2021). While Dr Tanouye does tag the original creator in the comment, her decision to use a green screen, rather than a stitch, may avoid her followers from flooding the original video with negative comments and she emphasises in the comments that shaming the creator is not the solution. Her decision to still integrate the original post directly into her video using a green screen demonstrates a necessity to be responsive to circulating misinformation, as she notes that she had been 'tagged' in the video by many of her followers, referring to a function on TikTok that allows users draw another user's attention to a video by 'tagging' their name in the comments section. By being responsive in this way, Dr Tanouye brings her audience, especially those that participated in the tagging, into the diffractive process of knowledge-making in which the untruths within the misinformation become reformed as points of knowledge in the new video.

Platform Zeitgeist

Another important skill OBGYNs mobilised was tapping into the platform culture to be able to cultivate a sense of play and familiarity with their communities, from which a sense of trust in their information can build. Demonstrating an intimacy with the TikTok zeitgeist and lending an expert voice to platform conversations allows OBGYNs on TikTok a legitimacy that is not only based on their medical expertise but arises from their membership within the community. For example, in one TikTok, which has 284.6 thousand views (as of May 2022), Dr Lincoln talks about whether you can remove your own IUD, which had become a major topic of conversation both on the platform and in the mainstream media after a TikTok user went viral removing her IUD at home (Cassidy, 2021). Dr Lincoln offers a surprising response that she has removed several of her IUDs at home, and explains that in some situations where the removal is straightforward, it can be done. She also notes that other OBGYNs may not agree with her, but also justifies her position on the basis that many people may not have access to medical care or may have other difficulties accessing a doctor. Her response demonstrates her awareness of the circulating conversation on the app about the viral IUD removal TikTok, as well as some of the criticisms made of this video by other OBGYNs on the platform. She integrates her personal experience into her educational content in this TikTok, as well as her medical expertise, and the somewhat playful platform discourses around IUDs also contribute to this knowledge production.

Similarly mobilising a finely tuned sense of trending popular culture moments on the platform, Dr Karen Tang (@karentangmd), an American gynecologic surgeon with 386.7 thousand followers, made several TikToks discussing rapper Nicki Minaj's viral tweet in which she expressed doubt about the safety COVID vaccines. In the tweet, Minaj claimed her cousin's friend's testicles had become swollen after he received a COVID-19 vaccine (Sun and Harmon, 2021), and the viral tweet was widely mocked, including across TikTok. After creating a TikTok debunking the claim about the effects of COVID vaccines on testicles, Dr Tang made a viral TikTok making light of the fact that after many years of training as a healthcare specialist she ended up making videos about 'someone's cousin's friend's

swollen balls'. The video, which has 338.9 thousand views (as of May 2022) shows Dr Tang in her scrubs standing in the shower while sad music plays. The video makes light of the ways that healthcare workers have to engage with outrageous misinformation, while also highlighting the extensive training and expertise that Dr Tang has to correct this viral tweet.

Diffractive platform affordances

We have described the various techniques employed by gynaecological experts who create content for TikTok in response to various myths and forms of (mis)information circulating on the platform. In these examples, content creators engage in the act of 'debunking' or correcting misinformation but do so by engaging with—and responding to—misinformation in creative and thoughtful ways. These approaches involve considering and addressing specific aspects of the misinformation with detailed explanations of *why* it's not correct, rather than simply declaring it 'untrue'. Importantly this is done using strategies that engage audiences affectively, such as humour, integration of examples and content from popular culture (see also Southerton, 2021; Stein, Yao and Aitamurto, 2022).

We argue these embodied, curated responses are examples of diffractive knowledge production: misinformation acts as a form of knowledge that is then engaged with and read diffractively through multiple forms of knowledge and knowledge-making apparatuses (e.g., the social media platform TikTok) (Barad, 2007). In this arrangement, knowledge is never fixed nor can be understood through rational ontologies that insist on evaluations of truth/untruth. Rather, knowledge production is a responsive, generative and ongoing process that acknowledges histories, materialities, and multiplicities (Clark and Thorpe, 2020). Through this lens, we can understand misinformation as part of the active processes of knowledge production and TikTok as an important space where multiple knowledges are contested, diffracted and produced. Debunking, as explored in this paper, then becomes a responsive form of knowledge production. Health professionals create content in *response*

to other information circulating on the platform, using the affordances of the platform and in light of the platform cultures (Kaye, Zeng and Wikstrom, 2022).

We have articulated the ways that the OBGYN creators on TikTok engage in debunking as a diffractive knowledge-making practice, in which misinformation is not banished, but rather integrated into new forms of knowledge through reuse and rethinking. The diffractive techniques we observed the OBGYN creators employing were afforded by capacities and functions of the platform that, as familiar users of the app, they were able to easily recognise and employ in their TikToks. TikTok's platform affordances are themselves part of diffractive knowledge-making because so many of the creative techniques we've described in this article: duetting, green screen and stitching *encourage* a kind of layering of content upon content. As Davis (2020, p. 11) argues, 'technologies request, demand, encourage, discourage, refuse, and allow particular lines of action and social dynamics.' Further, these findings align with scholarship that has highlighted that TikTok platform affordances can foster collective social and political discourse (Hautea *et al.*, 2021; Kaye, Zeng and Wikstrom, 2022).

Conclusion

Concern about health and medical misinformation has intensified since the COVID-19 pandemic, especially as misinformation about the virus itself and vaccines to curb the outbreak have been pervasive. However, as we have explored, misinformation has been framed in popular and academic discourse through a harm-focused lens and digital platform policy recommendations have focused on removing misinformation, as a way to respond to the problem. In this article, we have considered the way that such an approach neglects the more nuanced practice of debunking, in which misinformation is *integrated into* new forms of knowledge, as it becomes part of new educational content. Using a case study of OBGYN creators on TikTok, we have argued that debunking is a creative use of misinformation that, rather than removing incorrect information, integrates it into something entertaining and corrective. We have taken up Barad and Haraway's concept of diffraction, to

conceptualise this knowledge-making process in which the old (in this case, misinformation) is always enfolded within new knowledges, layered within it rather than discarded.

The second contribution we have sought to make is to trace the ways TikTok's platform affordances become integral to these diffractive practices. The capacities and affordances of TikTok, such as creator tools like duetting, green screen effects and stitches, encourage and allow the layering of misinformation into new forms of knowledge rather than simply removing or dismissing it. The creators in our study responded to misinformation not by removing or denying it, but by creatively integrating it into new knowledge, using the specific platform affordance that often provided audiences access to the original (misinforming) source. In this way, the platform, and its affordances, become part of the diffractive process. Multiple knowledges are read through and produced through dynamic engagements and interactions between so-called 'misinformation', expert knowledges, and the material and technological specificities of TikTok.

By tracing the role of misinformation in educational content, we argue that misinformation can be generative on TikTok, through the content that is generated in response to it and the discussions it creates space for. While misinformation can certainly be harmful, and we are not dismissing the harms of misinformation more broadly, focusing only on its removal does not account for the creative processes of relational and responsive knowledge production that we observed in these TikTok communities. Going forward, more nuanced accounts of how misinformation is circulated, produced and contested in these spaces would be strategic as information consumers engage with information not purely rationally but in ways that are also deeply affective and bodily.

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