As social media has evolved, so too have the norms of online engagement. Expressions of intense polarization, harmful accusations, and moral superiority are readily observable online, and increasingly infiltrating spaces meant for collegial discourse. Scientific publications are no exception.

While our ability to comment on one another’s work has dramatically expanded through online publication – opening channels to thoughtful questions and helpful feedback – it has also invited harmful attacks that undermine collegiality and collaboration.

In our Ethics Lunch & Learn webinar for The Task Force for Global Health staff, we examined the intense online response to the protocol for the study, Preventing Infant Malnutrition with Early Supplementation (PRIMES), which involved formula supplementation in Africa, published in *PLOS One*. In this case, online commenters condemned the research, and accusations of unethical conduct spread quickly, spilling over into social media. The reputations of the researchers and the ethics review boards quickly came under fire, and a petition to halt the research garnered more than 39,000 signatures.

During the webinar, we reviewed what transpired, heard from the protocol authors about their experiences, and considered: What is at stake when scientific discourse is undermined by those claiming the moral high ground?

Note: The intent of the webinar was not to debate the well-established benefits or the WHO recommendation for exclusive breastfeeding (EBF), nor to deny histories of exploitation by manufacturers of infant formula. Rather, we aimed to focus on the ethical issues related to online discourse and journal publication.
The PRIMES Study and infant malnutrition

Child malnutrition is a major public health challenge in low- and middle-income countries (LMICs). While the evidence-based recommendation for exclusive breastfeeding has significantly reduced infant malnutrition and mortality, breastfeeding alone may not meet nutritional demands in all cases.

The PRIMES Study aimed to evaluate the efficacy of small volume (<59 ml per day) formula supplementation in low birth weight infants and those not growing as expected by four days of age. Involving 324 mother-baby pairs in Uganda and Guinea-Bissau, the study compared breastfeeding infants who received daily supplementation with those who were exclusively breastfed. The researchers hypothesized that formula supplementation can increase the nutritional status of at-risk infants.

The study received ethical approvals from the Guinea-Bissau National Committee on Ethics in Health, Makerere University, the Uganda National Council of Science and Technology, and the University of California, San Francisco. The formula product used for supplementation (produced by Abbott) was purchased retail. Mothers who participated provided written informed consent.

Accusations of unethical conduct

Within days of publication of the PRIMES protocol in PLOS One, the online comments section erupted with accusations of unethical conduct and conflicts of interest, including one false claim that the researchers and/or universities owned patents with Abbott.

Soon after, an editor at PLOS One, Dr. Tanya Doherty, along with her colleagues, wrote an opinion piece calling into question the ethics of the PRIMES Study and its investigators, which they published in BMJ Global Health. The editorial questioned the roles of researchers based in high-income countries, argued that the protocol was in direct conflict with existing recommendations, and claimed that “the study is uncalled for,” given existing public health nutrition guidelines. They also implied that the local IRBs were pressured into approving the protocol and questioned the ethics review process.
The publication of the *BMJ* editorial by Doherty et al. added fuel to the fire online, provoking additional backlash on social media impugning the moral character of the PRIMES investigators and reasserting the perceived unethical nature of the study.

In a response by the PRIMES researchers, also published by *BMJ Global Health*, Dr. Victoria Nankabirwa, of the Ugandan research team, and her colleagues addressed the key criticisms. They argued that studying supplementation is ethically necessary to address the nutritional needs and survival of infants whose growth is not optimally supported by EBF.

“We strongly advocate for the opportunity for academic discourse,” they wrote, but lamented that “unnecessary polarisation runs the risk of repressing legitimate scientific inquiry, undermining progress and contributing to the ever-increasing inequity between those who are able to achieve adequate nutrition and those who cannot.”

In the same *BMJ Global Health* issue, Doherty and colleagues published another rebuttal, reiterating their previous criticisms, and provoking additional online engagement.

**Investigators’ perspectives**

To understand the human experience of the online backlash, we invited the protocol authors to speak. Dr. Valerie Flaherman, the study co-principal investigator, was resolute in explaining her position on the need for scientific research - even if fraught with challenges - to change public health practice.

“If we don’t question old ideas, we’ll lose a lot of opportunity for growth in science,” said Flaherman. “The problem of growth impairment persists unabated because we’re just doing the same things we’ve always done, and we’re going to have the same result we’ve always had.”

When asked about the flurry of online activity following publication, co-investigator Dr. Amy Ginsburg described the hurtful experience of the personal attacks. “I was totally unprepared for this backlash,” she said.

“The public response felt non-scientific,” said Flaherman. She described how many of the online comments revealed their authors had not carefully reviewed the study protocol.
Editor’s perspective

After the webinar, we also reached out to Dr. Tanya Doherty, hoping to better understand the motivations and perspectives of the authors of the BMJ Global Health editorial and rebuttal. Through this conversation, we learned more about underlying tensions in the maternal and neonatal research communities that contributed to the response.

Polarized thinking around the use of infant formula is common. Colleagues are firmly positioned on one side or the other, their views bolstered by the belief that their side has the moral high ground. For example, there is a deeply held belief by many that any experimental intervention involving infant formula is unjustifiable because, as Doherty said, “there is absolutely no scenario in which Uganda and Guinea-Bissau are going to start providing formula to infants born with low birth weight.”

She added, “That's really the fundamental issue with this research. There is no scalability.” She explained that advocates of EBF feel they “have to be vigilant, always keeping an eye out, raising awareness, and engaging in debates.”

Doherty acknowledged that online comment sections in journals are not necessarily helpful. “I think that sometimes the comments get personal and ugly,” she said. “It detracts from the key issues,” adding that “they allow comments to be posted by anybody.”

Addressing ethical issues

It is important to distinguish between two ethically problematic areas in this case study: comments made by individuals in the open online comment section, and the editorial processes at PLOS One and BMJ Global Health.

First, the aggressive tenor of online comments to the PRIMES protocol signals a larger trend in toxicity online, which highlights an increasing need for accountability of those who own these online platforms. The PLOS One editors’ decision to publish the PRIMES manuscript indicates that any reservations about conflicts of interest or other ethical concerns were satisfactorily addressed. It was therefore inconsistent for PLOS One to remain silent when the journal’s comment section was flooded with potentially libelous statements and personal attacks on the authors of their published papers.

Second, the peer review process is intended to surface and address both ethical and technical issues, and to offer investigators the chance to provide further information before a manuscript is accepted for publication.
And after publication, there is typically a mechanism to officially respond (e.g., public comment, editorial, letter to the editor). It is therefore not customary for ethical concerns about a publication to surface in an entirely different journal. That this transpired in the case of the PRIMES protocol raises questions not only about the initial peer review at PLOS One, but also the responsibility of the editors of BMJ Global Health in vetting the concerns voiced on their platform.

That Doherty and colleagues were compelled to publish their critique in a second journal also raises questions about whether there was an avenue to do so at PLOS One. And, relatedly, raises questions about the responsibility these authors may have for the potentially harmful impact of their claims on the investigators and affiliate institutions.

Seeing the Faces

The response to the PRIMES protocol raises important questions for the global health community. How might increasingly polarized and combative online scholarly forums harm scientific discourse and progress? What ethical safeguards should be considered in the publishing process? When caught up in an online torrent of disinformation and backlash, what recourse do individual investigators have to engage questions of ethical judgment or misconduct? What is the responsibility of the journals whose pages provide the forum for public engagement? How might those concerned about the ethics of proposed research more effectively and respectfully respond?

When faced with an approach that appears to conflict with our core beliefs or undermine our vision for achieving the goals of public health, such as health equity, it is easy to react with passion and defensiveness. Finding solutions to global health’s most challenging problems would be better served if we could pause and ask, with genuine curiosity, “What am I missing? How can I listen better? How can I effectively and respectfully engage? What can I contribute that will positively impact the work and our scientific community?”

At this moment of unprecedented connectivity, our ability to question, challenge, and learn from one another has never been greater. This case serves as a lesson to hold ourselves accountable when assuming the moral high ground, even when our intentions are well-placed and our values are laudable. It also implores us to ‘see the faces’ of those who may be impacted by our actions - including our own colleagues. With rigorous scientific discourse and discovery, seemingly intractable global health problems become less insurmountable. With collaboration and respect for one another, we are better positioned to achieve our shared aspiration for health equity.