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# Evaluating the Effects of Misinformation on Public Sentiments Surrounding Access to Abortion Through Social Media Sentiment Analytics

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**Abstract.** As social media use has grown in recent years, ease of access and rapid data collection through online social media has permitted researchers to measure and track sentiments related to emerging public health threats. Herein, we explore the possibilities of examining messaging shared via social media networks for sentiment classification as it relates to women's reproductive healthcare, especially access to abortion. In our previous works, our team has successfully employed various natural language processing (NLP) models for the analysis of social media shared sentiments. This study reports a work-in-progress on the similar use of fine-tuned NLPs (i.e., DistilRoBERTa) to collect/analyze the sentiments of socio-behavioral data shared via social networks to uncover a correlation between reproductive-related misinformation (i.e., access to abortion) and public sentiments/discourse direction.

**Keywords.** Digital Health, Sentiment Analysis, Abortion, Women's Reproductive Healthcare, Precision Health, DistilRoBERTa

## 1. Introduction

Abortion undeniably remains a prominent topic of conversation across several sectors including politics, healthcare, and places of worship [1]. In recent years social media has been a growing forum in which sentiments regarding abortion, both positive and negative, have been expressed [2]. This growth has given way for abortion-related stigmatization and misinformation to propagate and spread via online forums, prohibiting the distribution of evidence-based, medically accurate abortion information. The most common themes of misinformation surrounding abortion include subsequent infertility, cancer development risks, mental health decline, permitted gestational age, litigation and policy, and topics related to self-managed abortion [3]. In examining one of the most widely used social media platforms, TikTok, the most popular 100 videos regarding medication abortion [4], it has been found that more than half provided medical education, with 45% highlighting resources on obtaining medication abortion [5]. Another investigation found that up to 20% of TikTok videos contain some form of misinformation [6].

## 2. Methods and Results

As the spread of misinformation poses a range of serious consequences including increased maternal morbidity and mortality among other psychological and psychosocial impacts, it is crucial to thoroughly examine the lens through which abortion misinformation is propagated via online outlets such as social media. In our previous works, our team has successfully employed various natural language processing (NLP) models for the analysis of social media shared sentiment related to public health concerns, including COVID-19 vaccination hesitancy and related misinformation [7,8]. Herein, we explore the similar use of fine-tuned NLPs (i.e., DistilRoBERTa) to collect and analyze the sentiment of socio-behavioral data shared via social networks to uncover a correlation between reproductive-related misinformation (i.e., access to abortion) and public sentiment/discourse direction. Discernment of the dynamic levels of population sentiment could be useful in identifying and combatting misinformation posing the greatest risk to safe access to abortion and other reproductive care, particularly for marginalized and vulnerable populations. Coupled with tools to bolster augmentation such as back-translation and end classification via Python and/or other sentiment analysis pipelines, the use of pre-trained NLPs could expeditiously classify the sentiment of large bodies of social media text to determine directionality and uncover useful trends for targeted evidence-based response and management strategies for women's reproductive healthcare delivery services, including access to abortion [9, 10]. Moreover, monitoring of social sentiments shared via media could support the development of comprehensive response strategies and interventions to mitigate the dangerous effects of abortion-related misinformation and bolster resilience for communities at the highest risk.

Improving access to reliable and trustworthy maternal health information is critical to public health. We expect the results of this work to scale up efforts to decrease maternal morbidity and mortality related to ever-exacerbating abortion restrictions.

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