Black infertility and social media engagement: a mixed methodology analysis

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Objective: To study social media engagement on Black infertility to better understand why there is lower utilization of in vitro fertilization by Black women despite higher infertility rates.
Design: The online analytics module BuzzSumo was used to quantify total engagements with the search term "Black infertility" across the commonly used social media platforms. The 10 article links with the highest engagement were selected from periods in 2020 and 2021. Sources cited in each article were reviewed to identify those that had citations of scientific peer-reviewed journals or national medical organizations. The contents of each article were reviewed for accuracy by comparing the article information against available scientific research and consensus data.
Patient(s): Not applicable.
Intervention(s): Not applicable.
Main Outcome Measure(s): Not applicable.
Result(s): After applying the exclusion criteria, nine article links remained in each date range. The highest engagement with the term "Black infertility" was found on Facebook for both 2020 and 2021. Ten percent of content regarding Black infertility in 2020 compared with 50% of content regarding Black infertility in 2021 referenced original studies in peer-reviewed journals. Links with greater social engagement were more likely to have academic sources in 2021 than in 2020 (odds ratio, 1.30). The highest user engagement was found for articles discussing the emotional toll of Black infertility.
Conclusion(s): Social media users encounter misleading or inaccurate information regarding Black fertility at similar rates to accurate content. Social media can propagate misinformation, and this study identifies social media as an opportunity to improve education directed toward Black women to increase the utilization of in vitro fertilization services. (Fertil Steril Rep® 2022;3:55–61. ©2021 by American Society for Reproductive Medicine.)
Key Words: Infertility, social media, Black, minority, IVF, health disparities

Discuss: You can discuss this article with its authors and other readers at https://www.fertstertdialog.com/posts/xfre-d-21-00119

Racial and ethnic disparities exist in both access to and outcomes of assisted reproductive technologies. Black women have higher rates of infertility than White women (7.2% vs. 5.5%, respectively) (1). Despite the higher rate of infertility among Black women, they are less likely to use in vitro fertilization (IVF) (2). Disparities between utilization of IVF by Black and White women exist even when socioeconomic factors are controlled for. When Black women undergo IVF, they experience lower live birth rates and cumulative live birth than White women (3–5).

Women aged >18 years spend the most time online among all demographic groups, and some use social media to elicit help and support in navigating the medical system (6). Social media allows people to connect and share information in an unprecedented way. Previous studies have established the positive power of community that social media can provide to patients who are experiencing a shared illness or challenge (7). However, despite its significant advantages, the accuracy of health information shared on social media is not monitored and does not undergo any peer-review process before being published. This results in the potential for sharing of health misinformation. Social media analytics tools that provide detailed, quantitative metrics have emerged. These comprehensive tools have been applied to male fertility but not yet in

Received July 1, 2021; revised November 4, 2021; accepted November 9, 2021.
M.A.R. has nothing to disclose. B.K.S. has nothing to disclose. K.V. has nothing to disclose. C.M.D. has nothing to disclose.
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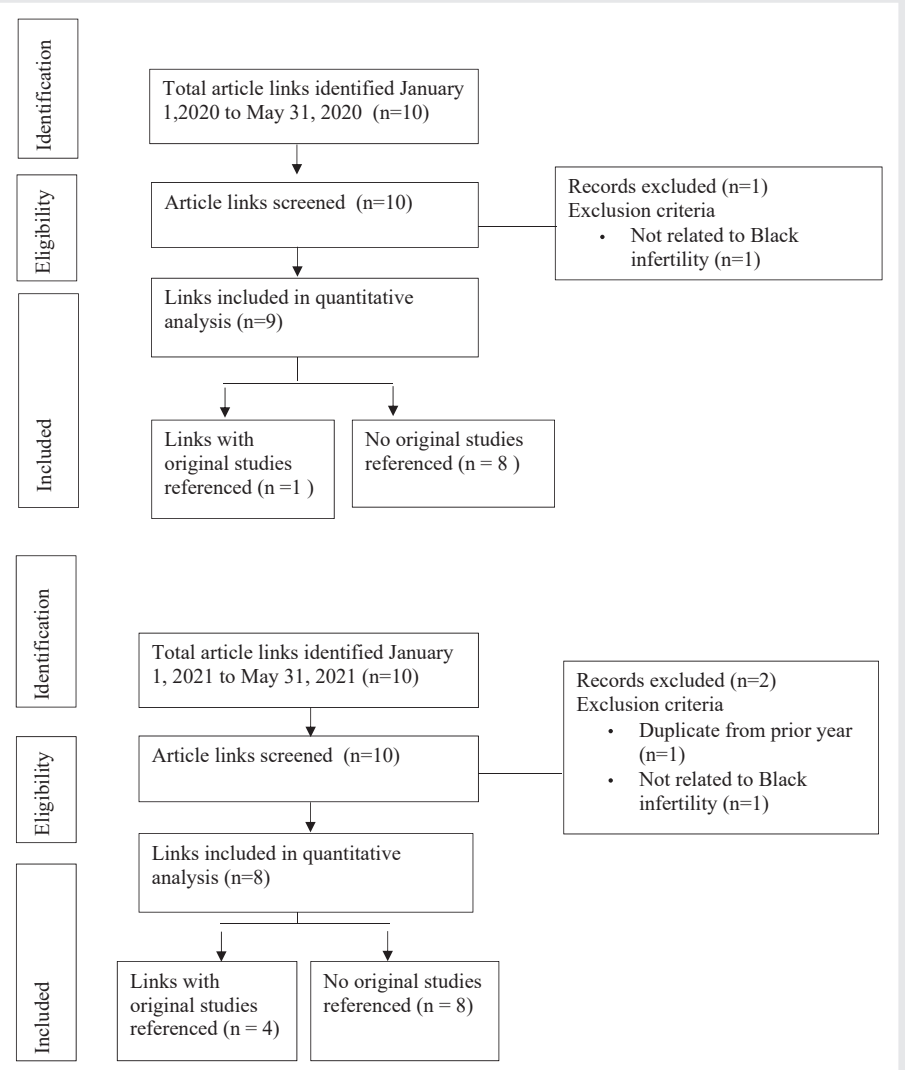
Fertil Steril Rep® Vol. 3, No. 2S, May 2022 2666-3341

https://doi.org/10.1016/j.xfre.2021.11.005

FIGURE 1



Methodology for content assessment using quantitative social media analytics tool from January 1, 2020, to May 31, 2020, and January 1, 2021, to May 31, 2021.

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the female infertility space. The aim of this study was to understand what information is available to Black women with infertility by analyzing engagement on various social media platforms.

MATERIALS AND METHODS

We identified 10 articles that resulted from the search term "Black infertility" with the highest number of shares on social media using BuzzSumo (BuzzSumo Ltd., Brighton, UK), an online analytic tool. This analytic tool tracks total engagements and shares on Facebook, Twitter, YouTube, Pinterest, and Reddit. BuzzSumo is a software platform data controller application that searches for articles based on key words and provides data about the number of shares on popular social media platforms (8). This is publicly available information and exempt from institutional review board approval. BuzzSumo has been used for data collection in research articles evaluating social media in both medicine and public health (9–11). The search term was used for two time periods: January 1, 2020, to May 31, 2020, and January 1, 2021, to May 31, 2021. The first 10 links that resulted in the highest total engagements for each time period were selected. Exclusion criteria were applied, which included links in languages other than English, links not related to Black infertility, links with <100 engagements, expired links, and duplicate links. Figure 1 summarizes the process for article search and selection. Sources cited in each article were reviewed, and links to scientific peer-reviewed journals or national medical organizations were identified. Each link was reviewed for accuracy by comparing the article information against current scientific research and consensus data. We

TABLE 1

Comparison of engagement by platform with graded accuracy of article links. Engagement is defined as the sum of "likes," "comments," and "shares" of a given link.

	Total		Misleading or Inaccurate		Accurate	
Subject of the article	No.	Number of shares	No.	Number of shares	No.	Number of shares
Emotional Support Black Infertility	5	1,787	2	745	3	1,042
Facebook		1,687		721		966
Twitter		100		24		76
Pinterest		0		0		0
YouTube		0		0		0
Reddit		0		0		0
Factors Attributing to Black Infertility	3	1,590	3	1,590	0	0
Facebook		1,525		201		1,324
Twitter		77		44		33
Pinterest		0		0		0
YouTube		0		0		0
Reddit		0		0		0
Advocacy for Black Infertility	3	453	0	0	3	453
Facebook		1429		0		1,429
Twitter		290		0		290
Pinterest		6		0		6
YouTube		0		0		0
Reddit		0		0		0
Films about Black Infertility and Motherhood	2	475	1	179	1	296
Facebook		469		174		295
Twitter		6		5		1
Pinterest		0		0		0
YouTube		0		0		0
Reddit		0		0		0
Interviews with Fertility Care Providers	2	220	1	141	1	79
Facebook		217		138		79
Twitter		3		3		0
Pinterest		0		0		0
YouTube		0		0		0
Reddit		0		0		0

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classified each link as either "accurate," "misleading," or "inaccurate" using the following criteria: "accurate" publications had to be consistent with either the latest American Society for Reproductive Medicine, European Society for Reproductive Medicine, and World Health Organization guidelines or scientific knowledge sources; "misleading" articles were those containing both accurate and inaccurate information, whereas "inaccurate" articles had to contain information inconsistent with the guidelines or scientific knowledge sources. Binary logistic regression was used to compare user engagement with accurate vs. inaccurate or misleading article links. Statistical significance was set at a P value of $<.05$.

RESULTS

After the exclusion criteria were applied to the search results, nine links remained in the 2020 time period and eight in the 2021 time period. The links were categorized into five categories: Emotional Support Black Infertility, Factors Attributing to Black Infertility, Advocacy for Black Infertility, Films about Black Infertility and Motherhood, and Interviews with Fertility Care Providers (Table 1). The highest engagement was found on Facebook for both 2020 and 2021 (Table 2). None of the links were scientific peer-reviewed journal websites or academic articles. The top result in 2021 was the same as that in 2020 and claimed that toxins in hair products marketed to Black women cause infertility. The two sources cited in this article were both linked to Wikipedia. Another search result claimed that vaccinations were used to sterilize women in Africa and provided no reliable source to back these claims. One of the links was written by a reproductive endocrinologist (RE), whereas journalists or lay bloggers wrote the others. Both YouTube videos in the results were interviews with fertility care providers. The first was a naturopathic doctor speaking about oral contraceptives causing infertility and cancer among African Americans. The other interview was with a board-certified RE and medical director of a fertility clinic about infertility in Black women. The interview with the naturopathic doctor had twice as much social media engagement but no sources identified, whereas the RE discussed both the Centers for Disease Control and Prevention (CDC) and American College of Obstetricians and Gynecologists guidelines.

Sources cited in each link were analyzed (Table 3) (12–24). In 2020, only one link contained a source from an academic journal, and there were 11 sources from national medical organizations. This included links to the CDC, American College of Obstetricians and Gynecologists, National Institutes of Health, and American Medical Association. In

TABLE 2

Social media engagement on the term "Black infertility" by platform from January 1, 2020, to August 31, 2020, and from September 1, 2020, to April 30, 2021.

Platform	Engagement (January 1, 2020–August 31, 2020)	Engagement (September 1, 2020–April 30, 2021)
Facebook	2,327	3,365
YouTube	0	273
Twitter	150	13
Pinterest	8	6
Reddit	6	0

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2021, there were 8 sources to academic journals and 12 sources from national medical organizations. *Fertility and Sterility* original studies were 4 of the 8 academic studies cited. Other sources included the websites of Society for Assisted Reproductive Technology and CDC.

Links with high social engagement were more likely to have academic sources in 2021 than in 2020 (odds ratio, 1.30) (20 of 66 in 2021 vs. 12 of 52 in 2020). There was no significant difference in the engagement between accurate vs. inaccurate/misleading links ($P=.42$) (Table 1). The highest user engagement was found for the articles discussing the emotional toll of Black infertility. The vast majority of the analysis for engagement came from Facebook, with 7,425 of the shares occurring on Facebook.

In 2021, two of the links with the highest engagement involved the short film "No Due Date," which shows the emotional toll of infertility on a Black woman through her uncomfortable interactions with friends and strangers.

DISCUSSION

Black women are less likely to pursue fertility treatments than White women (2). When we examine the factors that prevent Black women from seeking or pursuing treatment with reproductive endocrinologists, we can see that cultural, societal, and financial barriers exist. To address these gaps in access to fertility care, social media may serve as a tool to increase reach to Black women. Reproductive-aged women have the highest rate of social media use and engagement. In 2020, between 81% and 84% of women aged 18–49 years used social media, and the average time spent on social media daily was 149 minutes (6, 25). We found that social media users encounter misleading or inaccurate information regarding Black fertility at similar rates to accurate content. Whether a link was accurate or misleading/inaccurate did not correlate with the level of social engagement it garnered. This study found an increase in the scientific sources used from January 1, 2021, to May 31, 2021, compared with January 1, 2020, to May 31, 2020. We found that 10% of the content regarding Black infertility in 2020 compared with 50% of content regarding Black infertility in 2021 referenced original studies in peer-reviewed journals. Despite this increase, none of the top links in either year were journal articles or national medical organizations' websites. This information suggests that scientific and medical organization websites are not effectively targeting and educating the general public. Further, when looking at engagement with professional interviews, the interview with the naturopath had twice as much engagement as the interview with the board-certified RE. A potential way to increase the uptake of evidence-based information regarding fertility is for REs to create more content directed to the general public about Black infertility.

Limitations of this study include the fact that not all social media platforms were searched, and the search was limited to one search term. The analytic tool BuzzSumo does not include all social media platforms, including Instagram and TikTok, which are very popular, the fourth and seventh most commonly used social media networks as of July 2021 (26). The methodology used by BuzzSumo relies on a reliable mechanism and search for links shared. Instagram and TikTok have limited text, and the contents of these social media platforms are primarily photos and videos. Further, Instagram stories can be viewed for only 24 hours. As most articles were shared on Facebook, the findings of this study are most applicable to Facebook. For this reason, content creation for Facebook by REs aiming to educate and reach patients should be prioritized. Another limitation of this study is that only one search term was used: "Black infertility"; thus, not all articles that pertain to fertility might have been captured.

CONCLUSION

There is a paucity of information about infertility directed toward Black women on social media with references and scientific backing. Further studies are required to identify how consumers are appraising information. Increasing patient-directed information with high-quality references can help improve the rate of Black women with infertility who seek treatment. Information and engagement on social media around Black infertility propagate misinformation, and this study identifies social media as an opportunity to improve education directed toward Black women to increase the utilization of IVF services. We hope that by increasing scientific and evidence-based information directed to Black women through the use of social media, barriers that keep Black women from seeking fertility care will be broken down.

Acknowledgments: The authors thank Kavita Batra, Ph.D., M.P.H., B.D.S., for the statistical support.

TABLE 3

Black infertility online content with the highest social media engagement referenced 14 scientific studies with 3 studies cited by multiple links.

Author/year of publication	Journal of publication	Study population; sample size	Main study finding	Number of times by top links
Taylor et al. (12)	Journal of African American Studies	12 individuals (6 couples)	Infertility can be a traumatizing event that is experienced differently by Black men and women	1
Wiltshire et al. (13)	Contraception and Reproductive Medicine	158 Black women in OBGYN clinic at a metropolitan hospital	Black women in this healthcare setting had a limited level of infertility knowledge	1
Sharara et al. (14)	Fertility and Sterility	95 White women undergoing 121 IVF cycles and 37 Black women undergoing 47 IVF cycles	Black women had poorer IVF outcomes than White women	2
Insogna et al. (15)	American Medical Association Journal of Ethics	Review	Infertility is a disease with a substantial psychosocial burden, and the lack of affordable options may have significant detrimental effects on the quality of life of millions of Americans	1
Crawford et al. (16)	Human Reproduction	959 new female fertility patients	Screening for depression is important in the infertility population	1
Ibrahim and Zore (17)	Journal of Assisted Reproduction and Genetics	Review	Reproductive endocrinologists have a duty to improve access to care for all women who are socially disadvantaged and experience poorer outcomes	1
Ceballo et al. (18)	Psychology of Women Quarterly	50 Black women with age range 21–52 y	Experiencing infertility greatly impaired women's sense of self and gender identity. The imperative to be an African American mother was influenced by an interplay of gendered, racial, and religious mandates	2
Quinn and Fujimoto (19)	Fertility and Sterility	Review	In the US infertile Black population, there is clear evidence of increasing incidence of myomas, higher BMI, longer duration of infertility before presentation to care, and increased tubal-factor infertility. These characteristics may serve as confounding variables when IVF outcomes are analyzed	1
Harris and Wolfe (20)	Current Opinion in Obstetrics and Gynecology	Review	Sterilization abuses reflected an ideology of stratified reproduction, in which some women's fertility was devalued compared with other women's fertility	1
Seifer et al. (3)	Reproductive Biology Endocrinology	13,717 IVF cycles from Black women and 109,004 IVF cycles from White women	Disparities in ART outcomes in the United States have persisted for Black women over the last 15 y for live and cumulative birth rates	3
Greenwood et al. (21)	Proceedings of the National Academy of Sciences	1.8 million hospital births in the state of Florida between 1992 and 2015	When Black newborns are cared for by Black physicians, the mortality penalty they suffer, as compared with White infants, is halved	1

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TABLE 3

Continued.

Author/year of publication	Journal of publication	Study population; sample size	Main study finding	Number of times by top links
Zurlo et al. (22)	Journal of Clinical Psychology in Medical Settings	250 infertile couples	The impact of infertility-related stress dimensions was significantly mediated by coping strategies and dyadic adjustment dimensions	1
Borrero et al. (23)	Fertility and Sterility	193 women aged 18-45 y who had undergone tubal sterilization	Misinformation about sterilization and limited awareness of contraceptive alternatives among Black women may contribute to racial disparities in tubal sterilization rates	1
Esposito et al. (24)	European Journal of Obstetrics Gynecology Reproductive Biology	627 patients whose ART treatment was blocked due to COVID-19	COVID-19 pandemic itself and the recommendation to stop ART program generated higher distress levels in infertile couples	1

Note: ART = assisted reproductive technology; BMI = body mass index; COVID-19 = coronavirus disease 2019; IVF = in vitro fertilization; OBGYN = Obstetrics and Gynecology.

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