



RESEARCH ARTICLE

How Social Media Affects Sexual and Reproductive Health Communication: A Systematic Literature Review (2019-2023)

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ABSTRACT

The influence of social media on sexual and reproductive health leads to significant changes in health communication and decision-making, which can profoundly impact individual and public health. This study systematically reviews literature on the impact of social media on sexual and reproductive health communication (SARHC) from 2019 to 2023, a period characterized by the extensive use of various social media platforms. Adhering to PRISMA guidelines, we meticulously searched the Web of Science (WoS) and Scopus databases, reviewing 742 papers, of which 29 met the inclusion criteria. The analysis utilized thematic analysis to present a comprehensive panorama of how social media affects the sexual and reproductive health communication. The study finds that social media is an important tool for promoting and enhancing the communication of sexual and reproductive health. It can serve as a Conversation channel for health providers, caregivers, and those in need of sexual and reproductive health. Social media is also an important means to obtain data related to sexual and reproductive health and a significant carrier to provide knowledge of sexual and reproductive health to the public. Social media plays positive roles in popularizing information, providing social support, improving health literacy, and advocating and mobilizing in the communication of sexual and reproductive health. However, at the same time, when using social media for the communication of sexual and reproductive health, it is necessary to be alert to the negative impacts such as information misguidance, privacy risks, mental health problems, and excessive addiction.

INTRODUCTION

Sexual and reproductive health is a crucial component of public health (Glasier et al. 2006). It plays a vital role in the physical and mental well-being of individuals, family happiness, and the stable development of society (Mitchell et al. 2021). However, sexual and reproductive health has long faced numerous challenges (Othman et al. 2020). Previous research has predominantly focused on enhancing sexual and reproductive health from a medical perspective, such as developing new treatment techniques and improving medical services (Van Gerwen et al. 2022). Sociological literature, on the other hand, reveals the equally important influence of environmental factors such as community, family, and school on improving sexual and reproductive health (Brewster et al. 1993). These factors play an indispensable role in shaping individuals' cognition, attitudes, and behaviors. Nevertheless, there are significant gaps in the dissemination of knowledge and services related to sexual and reproductive health worldwide (Ravindran & Govender 2020).

With the proliferation of social media, its role in health communication has become increasingly important (Afful-Dadzie et al. 2023). In the field of communication, literature exploring how social media impacts sexual and reproductive health (Bacchus et al. 2019) has emerged in recent years. Research indicates that the complexity and sensitivity of sexual and reproductive health communication make effective information dissemination particularly challenging (Svanemyr et al. 2015). The characteristics of social media, such as the speed, reach, and interactivity of information dissemination, present unprecedented opportunities for the dissemination of sexual and reproductive health knowledge, as well as numerous challenges (Fayoyin 2016). Social media can transcend geographical and temporal limitations (Fayoyin 2016), allowing more people to access relevant knowledge (Ahmed et al. 2019); it can also attract user attention and enhance the effectiveness of information dissemination through vivid and diverse formats (Zheng & Zheng 2014), such as images, videos, and animations. However, the diversity and uncertainty of information sources on social media can lead to the spread of false (Muhammed T & Mathew 2022), exaggerated (Tasnim et al. 2020), or inaccurate (Zubiaga et al. 2016) information, thereby negatively impacting sexual and reproductive health communication (Collins et al. 2011). Social interactions on social media can also have complex effects on the sexual and reproductive health communication. User interactions and sharing can create positive community support (Liu et al. 2020), enhancing individual self-awareness (Razak et al. 2020) and protective consciousness (Korda & Itani 2013); conversely, inappropriate comments or misleading experiences shared can lead to the spread and dissemination of erroneous concepts (Viviani & Pasi 2017).

Most of these studies discuss only one aspect of the impact of social media on sexual and reproductive health communication and do not form a comprehensive understanding. This study aims to provide a comprehensive and systematic review of how social media influences sexual and reproductive health communication. By thoroughly examining and analyzing existing literature, this SLR will present a complete and clear panorama of the impact of social media on sexual and reproductive health communication. It will delve into the positive roles and potential risks of social media in this context. Furthermore, this study will analyze the role social media plays in the dissemination of sexual and reproductive health information and seek effective strategies to promote sexual and reproductive health communication in the social media environment. The goal is to provide support and practical guidance for further improving the state of sexual and reproductive health communication.

2. METHODOLOGY

The first step in conducting a systematic literature review (SLR) is developing and validating the review protocol (Mohamed Shaffril et al. 2021). This protocol serves as a detailed plan outlining the key aspects to be included in the review (Mohamed Shaffril et al. 2021). It describes the rationale behind the review question and the proposed methods, including the rationale behind the research question and the proposed methods. It is designed to minimize bias and clarify how different types of studies will be selected, evaluated, and synthesized. The protocol also addresses the review's communication strategy.

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines offer an evidence-based checklist for improving the reporting of systematic reviews and meta-analyses (Liberati et al. 2009). While PRISMA primarily focuses on the assessment of randomized trials (Page et al. 2021), it can also be adapted to guide the reporting of comprehensive reviews of other study types, especially intervention studies (Liberati et al. 2009). Adhering to PRISMA guidelines helps enhance the quality of reporting and reduces the risk of misinterpretation and bias in systematic reviews (Liberati et al. 2009).

In this study, we strictly adhered to the PRISMA guidelines to ensure the rigor and transparency of the review process. Following the PRISMA framework for systematic literature review, we undertook several key steps: First, we developed a comprehensive search strategy to screen relevant studies from specified databases (Web of Science and Scopus). Next, we applied rigorous inclusion and exclusion criteria to select studies that aligned with the research objectives. The screening and

selection process was meticulously documented to maintain transparency. Subsequently, we conducted data extraction and quality assessment of the included studies. Finally, we summarized and analyzed the findings according to PRISMA guidelines to ensure the reliability and reproducibility of the review.

2.1 Research Question

The phenomenon of interest, design, evaluation, and research type (SPIDER) framework aids in formulating research questions (Cooke et al. 2012). Through various studies, social media has been shown to influence the sexual and reproductive health communication. Consequently, the research question for this SLR has been formulated:

RQ1: What types of social media effects on SARH?

RQ2: What role does social media play in the SARHC?

2.2 Systematic searching strategies

This section explains the three sub-processes of the literature search strategy for the SLR, namely identification, screening, and eligibility.

2.2.1 Identification

Identification is the process of searching for the right keywords based on the research questions. In this SLR, two main keywords (i.e., social media, sexual and reproductive health) and their synonyms were used. The keywords were developed based on the research question as suggested by Okoli (Okoli 2015), and the identification process relied on online thesauruses, keywords used by past studies, keywords suggested by Web of Science (WoS), and keywords suggested by experts. As shown in Table 1, this study managed to enrich a series of keyword strings using the WoS database and Scopus to search for the required articles. Accordingly, search strings on Scopus and the Web of Science database were developed in April 2024 (Refer to Table 1) after all relevant keywords managed to be determined. These two databases can be leading databases in a systematic literature review due to several advantages they possess such as advanced searching functions, comprehensive (indexing more than 5000 publishers), control of the articles' quality, and multidisciplinary focus, including environment management-related studies. In the first stage of the systematic literature review, 88 papers were retrieved from WOS and 652 documents were retrieved from the SCOPUS database. During the literature selection process, we also employed the snowball method to expand our search. Specifically, we reviewed the reference lists and citation networks of the included studies to identify additional relevant research. This approach helps to uncover important literature that may not have been found in the initial search and ensures that we cover all relevant studies in the field as comprehensively as possible. Ultimately, we identified 2 additional studies using this method. A total of 742 articles were successfully retrieved. The next step is to screen these articles.

Table 1. The searching strings.

Database	Search strings
Web of Science	TI=(social media OR Facebook OR Twitter OR YouTube OR Instagram OR TIKTOK) AND TI=(sexual and reproductive health OR sexual health OR reproductive health OR sexual and reproductive OR sexual OR reproductive)
Scopus	TITLE-ABS-KEY ((social AND media OR Facebook OR Twitter OR YouTube OR Instagram OR TIKTOK) AND (sexual AND reproductive AND health OR sexual AND health OR reproductive AND health))

2.2.2 Screening stage

The second stage involved the screening of the literature. Initially, 11 duplicate papers from the first stage were excluded. The subsequent screening process included both automated and manual screening. The criteria for automated screening were as follows:

- Include only articles published between 2019 and 2023.
- Include only articles in English.
- Include only articles, excluding conference papers, reports, reviews, and other types.

Through automated screening, a total of 494 documents were excluded, leaving 237 papers. Next, a manual screening was conducted by carefully reading the titles and abstracts to retain only articles focused on the influence of social media on sexual and reproductive health. In this stage, 186 articles were excluded, resulting in 51 articles proceeding to the qualification review.

2.2.3 Eligibility stage

During the eligibility stage, we reviewed the full texts of the articles. Only articles discussing the impact of social media on sexual and reproductive health communication were included. Articles that focused on sexual and reproductive health from a medical perspective, discussed the impact of traditional media on sexual and reproductive health, explored social media as a research method or platform, or did not address the impact of social media on sexual and reproductive health were excluded. A total of 17 articles were excluded, and one article that could not be accessed in full was also excluded. In total, 32 articles were identified as meeting the qualification criteria.

2.2.4 Quality Appraisal stage

After the eligibility, 32 articles were selected for inclusion. To ensure the quality of the articles, all were submitted to LUO and LI for quality assessment. Following the recommendations of Petticrew and Roberts (Petticrew & Roberts 2008), the experts categorized the remaining articles into three quality levels: high, medium, and low. We only reviewed articles classified as high and medium quality. The experts used the 16-item Quality Assessment Tool for Studies with Diverse Designs (QATSD) (Sirriyeh et al. 2012) to determine the quality level of each article. For an article to be included in the review, both authors had to agree that its quality was at least at a medium level. They discussed any disagreements before deciding whether to include or exclude the articles for review. As a result of this process, 19 articles were classified as high quality, 10 as medium quality, and 3 as low quality. Therefore, only 29 articles were eligible for review, as shown in figure 1.

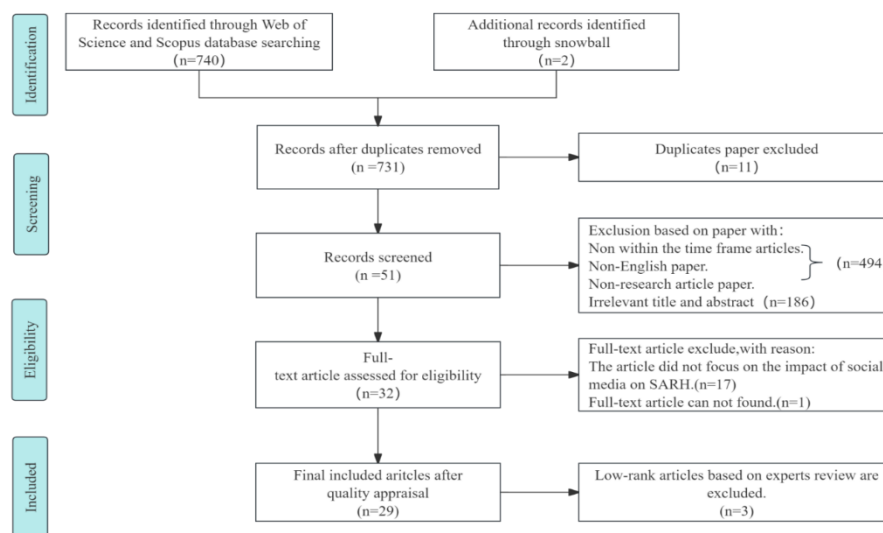


Figure 1. Flow Diagram of the study.

2.3 Data Abstraction and Analysis

Data abstraction is based on the research questions, with data that can address these questions being compiled into a table. At this stage, we carefully read the abstracts and thoroughly understood the full texts, focusing on specific studies that addressed the formulated questions. The optimal approach for synthesizing or analyzing integrated data is through qualitative or mixed-methods techniques, which allow researchers to conduct iterative comparisons between primary data

sources(Sandelowski et al. 2012). Therefore, this study employed thematic analysis to generate themes and sub-themes.

Thematic analysis is used to identify patterns and themes, cluster and count data, and note similarities and relationships within the abstracted data(Braun & Clarke 2006). All 29 included articles underwent thorough analysis, focusing on the abstracts, results, and discussion sections. The first step in conducting thematic analysis is to generate themes(Braun & Clarke 2006).In this process, it is crucial to identify patterns that emerge from the abstracted data across all reviewed articles. By recognizing these patterns, researchers can better understand common themes and trends, which will help in drawing meaningful conclusions and ensuring that the findings are comprehensive and relevant.Any similar or related abstracted data were pooled into groups, eventually resulting in the creation of three main groups. The authors then re-examined these three main groups and identified 11 additional sub-groups. The next step involved reviewing the accuracy of these themes; the authors meticulously re-evaluated all main and sub-themes to ensure they were useful and accurately represented the data. Following this, the authors proceeded to name the themes for each group and sub-group, starting with the main groups before naming the sub-groups (see Table2).

Table 2. The theme and the sub-theme of included articles.

Author	Country	PHEP	SMU	PIO SM on SARH				NIO SM on SARH				SM as T for SARHC			
				POI	SS	IHL	AAM	TII M	PR	TT MH	EA	CC	DS	KC	
Abesamis 2023	Philippines	√	Transgender	√	√	√	√	×	×	×	×	√	√	√	
Scarlett Bergam.e t al,2022	South Africa	√	Teenager	√	√	√	√	×	×	×	×	√	√	√	
Joseph Friedman Burley.et al,2023	Canada	×	Health and social service providers.	√	×	×	√	×	×	×	×	√	√	√	
Lauren S Chernick. et al,2022	USA	×	Teenager	√	√	√	√	×	×	×	×	√	√	√	
Adrea Cope.et al,2022	UK	×	Public	√	×	√	√	√	×	×	×	√	√	√	
Gavin Goodwin. et al,2021	Canada	×	MSM	√	×	√	√	√	×	×	×	√	√	√	
Christine Marie Habito.et al,2021	Philippines	×	Youth (16-20 years old)	√	×	√	×	×	×	×	×	√	√	√	
Maija Hirvonen. et al,2021	UK	×	Student (14-26 years old)	√	×	√	×	×	√	×	√	√	√	√	
Paul Hutchins on.et al,2019	Kenya	×	Youth (15-24 years old)	√	×	√	×	×	×	×	×	√	√	√	
Krista Jones.et al,2019	USA	×	Youth (15-23 years old)	√	×	√	×	√	√	×	×	√	√	√	

Olivia N. Kachingwe et al,2020	USA	×	Foster youth (6-20 years old) and foster care staff ages	×	×	×	×	√	×	√	√	×	√	×
Joanna M. Kesten et al,2019	UK	×	Gay men and bisexuals	√	×	√	×	×	√	×	√	×	√	√
Genevieve Martínez-García et al,2023	USA	×	Teenager	√	×	√	×	×	×	×	×	×	√	√
Carolina Matos,2020	Not specified	×	Health and Feminist NGOs	√	×	√	√	×	×	×	×	√	√	√
Ona L. McCarthy et al,2022	UK	×	Female (16-55 years old)	√	×	√	×	×	×	×	×	×	√	√
Niken Meilani et al,2023	Indonesia	×	High school student	×	×	×	×	×	×	√	√	×	√	×
Ammal M. Metwally et al,2021	Egypt	×	Married couples (15-49 years old)	×	×	×	×	×	×	×	×	×	√	×
Isha Nair et al,2023	USA	√	We-media	√	×	√	×	×	×	×	×	×	√	√
Emmanuel Olamijuwon et al,2021	Africa	×	Youth	√	√	√	×	×	×	×	×	×	√	√
Emmanuel Olamijuwon et al,2022	Africa	×	Youth (18-24 years old)	×	×	√	×	×	×	×	×	×	√	√
Anna Pawlikowska et al,2022	Poland	√	Female (16-60 years old)	×	×	×	×	×	×	√	√	×	√	×
Carrie Purcell et al,2023	UK	×	Middle school student	×	×	√	×	×	√	×	×	√	×	√
Ria Saha et al,2022	India	×	Teenager	√	×	√	×	×	×	×	×	×	×	√
Courage Mlambo et al,2022	South Africa	×	Maternity and healthcare workers	√	×	√	×	×	×	×	×	×	×	√
Thierry Claudien Uhaweni	Rwanda	√	Public	×	×	√	×	√	×	×	×	×	×	√

mana.et al,2023														
Jade Burns.et al,2020	USA	×	Black people (18-24 years old)	√	×	√	×	×	×	×	×	×	×	√
Yunpeng Zhao.et al,2020	USA	×	Sexual and gender minorities.	×	√	×	×	×	×	×	×	×	√	×
Zhi - Wei Zheng.et al,2020	CHINA	×	MSM	×	√	×	×	×	×	×	×	×	√	×
Shelby H. Davies.et al,2022	Not specified	×	Teenager	√	√	√	√	×	×	√	×	√	√	√
PHEP=Public health emergency period SMU=Social media user PIOISM on SARH=The positive impact of social media on SARH NIOSM on SARH=The negative impact of social media on SARH SM as T for SARHC=Social media as tool for SARHC MSM=Men who have sex with men.				PIOISM on SARH		NIOSM on SARH		SM as T for SARHC						
				POI=Popularization of information		IM=Information misleads		CC=Conversation channels.						
				SS=Social support		PR=Privacy Risks		DS=Data Sources.						
				IHL=Improve health literacy		TTMH=Threat to mental health		KC=knowledge carrier.						
				AAM=Advocacy and mobilization		EA=Excessive addiction								

3. RESULT

3.1. General Findings of the Studies Included in the Review

After a meticulous and neat method of selection, a total of 29 articles were included in the review. The studies were conducted in 12 different countries or regions, with 2 articles not specifying the research location. According to Figure 2, 7 articles focused on the United States, followed by 5 on the United Kingdom, 4 on Africa, and 2 each on Canada and the Philippines. The remaining articles each covered one of the other countries.

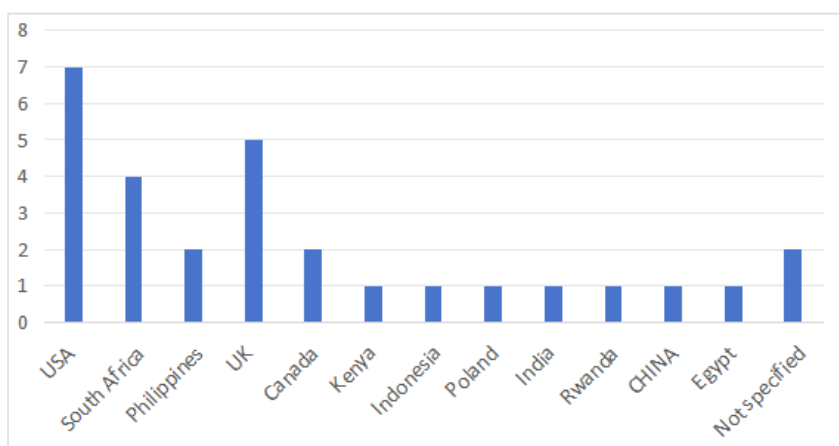


Figure 2. Distribution of study locations for selected articles.

Based on the performed analysis, The distribution of social media user groups focused on in the selected articles is shown in Figure 3. Among the 29 articles, those focusing on adolescents, young adults, and students are the most numerous, totaling 13. Notably, 5 articles focus on MSM (men who have sex with men) and sexual minority groups, including homosexual and transgender individuals.

4 articles focus on health providers or caregivers and health organizations; 3 articles focus on the general public and self-media practitioners; 2 articles focus on women; 1one article focuses on couples; and 1 article focuses on Black people.

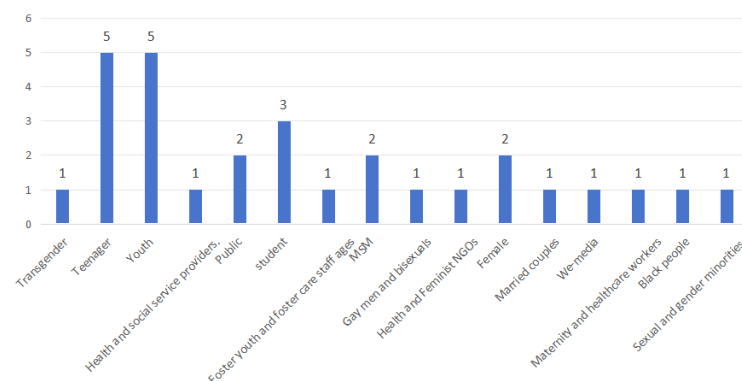


Figure 3. Social media user groups focused on in the selected articles

3.2. Main Findings

The main findings of the articles focus on how social media impacts the SARHC. Through a thorough review of the 29 included articles, we identified three main themes: The positive impact of social media on SARH; the negative impact of social media on SARH; and social media as tool for SARHC. We found that 25 articles discussed the positive impact of social media on SARH, 11 articles discussed the negative impact of social media on SARH, and all articles discussed social media as tool for SARHC. Under these three themes, we summarized 11 sub-themes. In this section, we will elaborate on each theme in turn.

3.2.1 The positive impact of social media on SARH

A total of 25 articles discussed the positive impact of social media on sexual and reproductive health. Among them, 20 articles agreed that social media plays a role in the popularization of information related to sexual and reproductive health. 7 articles highlighted that social media provides social support to those in need of sexual and reproductive health information. 22 articles agreed that social media can enhance sexual and reproductive health literacy. Additionally, 8 articles noted that social media has an advocacy and mobilization effect on sexual and reproductive health issues.

Popularization of information

The information communication characteristics of social media include timeliness and wide reach (Agarwal & Yiliyasi 2010). It can quickly convey relevant information to a large number of users, benefiting more people (Carr & Hayes 2015). Consequently, social media plays a crucial role in the popularization of sexual and reproductive health information. For example, some studies have found discussions about sexual and reproductive health on social media platforms like Twitter (Davies et al. 2022). Users can share and obtain information about menstruation, sexual behavior, contraception, and sexually transmitted infections on these platforms (Olamijuwon & Odimegwu 2021). They can also exchange and learn from each other by posting tweets, asking questions, or sharing experiences (Saha et al. 2022).

Social support

Social support refers to the resources and assistance that individuals obtain from their social networks, which can be emotional, informational, or tangible. When facing sexual and reproductive health issues, individuals often feel isolated and confused (Habito et al. 2022; Hirvonen et al. 2021). The emergence of social media provides them with a channel to seek support and understanding. The anonymity of social media allows individuals to share their experiences and problems related to sexual and reproductive health, and other users can respond with advice and suggestions (Goodwin 2021). This interaction can help them feel supported and cared for by others. Additionally, some

social media groups or forums specifically focus on discussions about sexual and reproductive health topics (Jones et al. 2019). Users can find others with similar experiences in these groups, thereby receiving emotional support and practical help (Olamijuwon et al. 2021). Social media offers abundant social support resources in the field of sexual and reproductive health, helping individuals better cope with and resolve related issues, and enhancing their confidence and sense of security.

Improve health literacy

Sexual and reproductive health literacy refers to the comprehensive ability of individuals in terms of knowledge, attitudes, and skills related to sexual and reproductive health. On social media platforms, users can access information about basic concepts of sexual and reproductive health, prevention and treatment of related diseases, and decision-making advice for sexual health (Kachingwe et al. 2020). Furthermore, social media can provide channels for information acquisition and evaluation (Hutchinson et al. 2019). Users can follow accounts of professional institutions, experts, or health bloggers to obtain reliable sexual and reproductive health information and learn to assess the accuracy and reliability of this information (Nair et al. 2023).

Additionally, discussions and interactions on social media help users enhance their decision-making abilities related to sexual health (Nair et al. 2023). Users can share their experiences and concerns, listen to others' advice, and thus make health decisions that are better suited to their own needs (Hirvonen et al. 2021). In summary, social media can enhance users' sexual and reproductive health literacy by providing knowledge, promoting information acquisition and evaluation, supporting decision-making, and strengthening communication. This helps individuals better manage their sexual health, make informed health decisions, reduce the risk of sexually transmitted infections, and improve their quality of life.

Advocacy and mobilization

Social media platforms offer unique opportunities for health providers, leaders, and organizations to promote health awareness and drive collective action (Meilani et al. 2023). Establishing a clear advocacy vision on social media can significantly enhance public understanding and engagement (Olamijuwon et al. 2021). By providing reliable information and creating supportive community environments, social media influences individuals' psychological safety. The broad reach of social media facilitates the promotion of health campaigns, the sharing of personal experiences, and the mobilization of resources, thereby advancing various initiatives in sexual and reproductive health (Jones et al. 2019). Overall, social media can actively promote advocacy and mobilization for sexual and reproductive health through initiating discussions, organizing events, sharing success stories and experiences, and providing references for policy-making, thus facilitating the resolution of related issues and the implementation of policies (Matos 2022).

3.2.2 The negative impact of social media on SARH

A total of 11 articles discussed the negative impacts of social media on sexual and reproductive health. Among these, 5 articles highlighted issues related to misinformation in sexual and reproductive health on social media. Additionally, 4 articles pointed out privacy risks for individuals seeking sexual and reproductive health information on social media. Another 4 articles discussed how social media could further threaten users' mental health in the context of sexual and reproductive health. Lastly, 4 articles addressed the problem of excessive engagement with social media in relation to sexual and reproductive health.

Mislead information

The information sources on social media are complex, and some may lack scientific basis or accuracy. For example, rumors, misconceptions, or inaccurate information about sexual health may spread widely on social media, leading users to acquire incorrect knowledge (Saha et al. 2022). Certain social media platforms may feature false advertising or exaggerated claims, particularly when promoting sexual health products or services (Olamijuwon & Odimegwu 2022). This can mislead users into making inappropriate decisions, potentially harming their sexual and reproductive health. Additionally, because information spreads rapidly and widely on social media, erroneous

information, once disseminated, can affect a large number of users, especially those with limited discernment, such as teenagers and young adults. The issue of information misinformation on social media regarding sexual and reproductive health needs to be addressed with seriousness.

Privacy Risks

The communication of information on social media is broad and difficult to control, which poses risks for users when sharing personal information about sexual and reproductive health. Users may face the risk of their information being leaked or misused due to security vulnerabilities on some social media platforms, which could result in their private data being targeted or stolen by hackers(Hirvonen et al. 2021). Additionally, users might inadvertently expose their privacy during interactions on social media, such as by sharing sensitive information in group discussions or comments(Habito et al. 2022). When seeking anonymous support and advice on sexual and reproductive health issues, users may increase the risk of privacy breaches, as they cannot be certain of the reliability of those with whom they are communicating(Kesten et al. 2019). The privacy risks associated with social media concerning sexual and reproductive health should not be underestimated.

Threat to mental health

Social media may contain a significant amount of inappropriate content related to sex, such as pornography and violent material, which can negatively impact users' psychological well-being, particularly affecting adolescents and young adults(Pawlikowska et al. 2022). For individuals facing issues or confusion regarding sexual and reproductive health, information on social media can exacerbate their anxiety and stress(Jones et al. 2019; Kesten et al. 2019). For instance, encountering information about sexually transmitted infections might provoke excessive worry and fear. Social comparison and evaluation can also adversely affect users' mental health(Kachingwe et al. 2020). Additionally, negative comments and remarks on social media, especially concerning sensitive topics like sexual and reproductive health, can hurt users' feelings and potentially trigger psychological issues(Kesten et al. 2019). In summary, social media poses certain threats to users' mental health in the context of sexual and reproductive health, which warrants attention.

Excessive addiction

Some users may become excessively engrossed in sexual and reproductive health content on social media, spending substantial time browsing, searching, and participating in discussions. Overindulgence in sexual information on social media can lead to distorted perceptions and attitudes towards sex, affecting users' sexual beliefs and behaviors, which could potentially have negative implications for their reproductive health. Additionally, for individuals with sexual and reproductive health issues, over reliance on information and support from social media may result in neglecting professional help and treatment in real life, potentially leading to a delay in addressing their condition(Jones et al. 2019). Excessive immersion in social media concerning sexual and reproductive health is a negative impact that warrants attention.

3.2.3 Social media as tool for SARHC

All 29 articles agreed that social media can serve as a tool for sexual and reproductive health communication. Notably, it can become a significant data source for research on sexual and reproductive health, as discussed in 24 articles. Additionally, 23 articles agreed that social media can act as a knowledge carrier for sexual and reproductive health communication. Furthermore, 13 articles suggested that social media can serve as an effective Conversation channel.

Conversation channels

Social media provides users with an open and convenient platform to freely discuss topics related to sexual and reproductive health. The anonymity offered by social media encourages some users to express their genuine thoughts and feelings about sexual and reproductive health without fear of judgment or discrimination(Habito et al. 2022). This dialogue channel helps to break the taboos surrounding sexual and reproductive health topics in traditional societies, facilitating the flow of

information and dissemination of knowledge(Habito et al. 2022). Moreover, conversations on social media can transcend geographical and temporal limitations, promoting communication between professionals and users. As a tool for sexual and reproductive health communication, social media plays a crucial role in enabling effective Conversation channels.

Data Sources

Social media platforms generate a vast amount of user-generated data related to sexual and reproductive health, including users' posts, comments, and shares(Nair et al. 2023; Zhao et al. 2020). This data reflects users' concerns, attitudes, and behaviors regarding sexual and reproductive health. The sources of social media data are diverse, encompassing users from different regions, ages, genders, and cultural backgrounds. These data can be mined and analyzed using techniques such as natural language processing and text analysis. As a result, social media provides a variety of perspectives and information, contributing to a comprehensive understanding of the current state and needs of sexual and reproductive health(Olamijuwon & Odimegwu 2022). Utilizing social media data for research can provide timely insights into public attention hot spots and trends related to sexual and reproductive health issues, offering valuable information for related research and decision-making(Zheng et al. 2020).

Knowledge carrier

Social media platforms host a wealth of information on sexual and reproductive health, including educational articles, videos, and images, which can assist users in acquiring relevant knowledge. Professional organizations, doctors, and scholars often share authoritative sexual and reproductive health information on social media(Sieving et al. 2020). Users can follow these accounts or topics to access accurate and scientific information. The interactive nature of social media allows users to engage in discussions and exchanges while obtaining knowledge, further deepening their understanding and application of the information(Olamijuwon et al. 2021). As a tool for sexual and reproductive health communication, social media can support a rich array of knowledge content and provide a platform for users to access and share information.

4. DISCUSSION

This paper is among the first systematic literature reviews to explore how social media usage impacts sexual and reproductive health. Currently, most evaluation studies on sexual and reproductive health communication are concentrated in the professional medical field and are conducted using meta-analyses(Roudsari et al. 2023; Ruane-Mcateer et al. 2020). Systematic literature reviews specifically addressing social media and sexual and reproductive health are relatively rare and tend to focus on particular sub-fields or specific populations within sexual and reproductive health.For instance, Döring and Conde conducted a scoping review of sexual health information on social media, highlighting the need for further research to better understand sexual and reproductive health information on these platforms and to enhance its quality and constructive use(Döring & Conde 2021).Guse et al. discussed the role of digital media in interventions targeting adolescent sexual and reproductive health, suggesting that new digital media platforms offer innovative avenues for adolescent sexual health interventions(Guse et al. 2012).L'Engle et al. conducted a systematic review of mobile interventions on adolescent sexual and reproductive health, emphasizing that incorporating text messaging into health promotion activities, sexually transmitted infection screening screening and follow-up, and medication adherence could potentially improve adolescent sexual and reproductive health outcomes(L'engle et al. 2016).These studies are relatively dated, while social media has developed rapidly in recent years. This review focuses on the latest research findings from the past five years, and the discoveries from this review provide a more comprehensive understanding of the multi-layered impacts of social media use on sexual and reproductive health.

The majority of studies in this review (86%) conclude that the use of social media can have a positive impact on sexual and reproductive health. This suggests that social media holds significant potential for promoting sexual and reproductive health. In particular, social media plays a crucial role in communication sexual and reproductive health information and enhancing sexual and reproductive health literacy.

Most of the studies in this review focus on adolescents, who remain a key target group for sexual and reproductive health communication. Adolescents are in a phase of rapid physical and psychological development, with a strong curiosity and need for knowledge regarding sexual and reproductive matters, yet they often lack accurate and comprehensive understanding (Rew 2005). Additionally, during this period, adolescents are particularly susceptible to external information, and without proper guidance, they may receive incorrect or harmful sexual and reproductive health information, leading to negative behaviors and outcomes. Furthermore, as sexual activity among adolescents begins at an earlier age, they may have insufficient awareness of sexual protection and contraceptive knowledge, which increases the risks of unintended pregnancies and sexually transmitted infections (Kalmuss et al. 2003). Given their higher media literacy, it is essential to effectively leverage social media to communicate sexual and reproductive health information to adolescents.

Some studies in this review (38%) also reveal that social media use can have negative impacts on sexual and reproductive health. This suggests that while promoting sexual and reproductive health through social media, it is crucial to be cautious of its potential adverse effects. The literature highlights that adolescents have weaker discernment abilities and are more easily misled by the information found on social media (Davies et al. 2022). Additionally, as adolescents are still developing self-control, they are more prone to excessive immersion in social media compared to other groups (Bermúdez 2017). In some studies, sexual minority groups are also a focus of sexual and reproductive health communication (Kesten et al. 2019). Due to their marginalized status and the social stigma, they face in real life, they are more likely to use the anonymity provided by social media for sexual and reproductive health communication. However, the anonymity of social media does not fully eliminate privacy risks, and individuals still face the potential for privacy breaches (Masur & Trepte 2021). Therefore, when utilizing social media to promote sexual and reproductive health, it is important to be mindful of its negative impacts, and traditional health promotion methods, as well as the involvement and support of schools, communities, and peers, remain essential.

All studies in this systematic review affirm that social media is a crucial tool for sexual and reproductive health communication. This implies that social media can be increasingly relied upon in promoting sexual and reproductive health, and strategies should be developed accordingly. This is particularly important for sexual and reproductive health service providers or organizations, where utilizing social media for communication is essential. Engaging in dialogue with those in need of sexual and reproductive health services, responding to their needs, and addressing their concerns and challenges through social media are key actions (Nadarzynski, Puentes, Pawlak, Mendes, Montgomery, Bayley, Ridge, et al. 2021). Actively capturing data on sexual and reproductive health through social media platforms enables a comprehensive understanding of the current landscape, which can inform the development of solutions or research to address existing problems and challenges. Moreover, it is vital to leverage the multimedia capabilities of social media to disseminate and promote professional, accurate, and identifiable sexual and reproductive health knowledge. This approach may become a significant direction for the future of sexual and reproductive health communication.

It is noteworthy that it is generally believed that sexual and reproductive health issues are more severe in underdeveloped regions (Denno et al. 2015), where there are greater difficulties and challenges in sexual and reproductive health communication and a higher demand for effective communication tools. However, within the scope of this review, research from these regions is not the most prevalent. Studies conducted in developed regions such as the United States, the United Kingdom, and Canada account for more than half of the total number. This may be due to the more advanced development and higher prevalence of social media in these developed regions. Simultaneously, this also implies that promoting sexual and reproductive health communication through emerging media forms in underdeveloped regions requires greater effort.

In the course of the review, several limitations were identified. Firstly, our data sources were limited, as we only selected literature from the WoS and Scopus databases, which may have led to the omission of significant studies or information. Secondly, our inclusion criteria were restricted to articles published in English, potentially overlooking other important research findings and limiting

the comprehensiveness of the review. Finally, our focus on social media within the context of the digital media era may have constrained the scope of our research.

Future research could expand the scope of search criteria and develop more comprehensive inclusion standards. It is also important to examine how current technological advancements impact sexual and reproductive health. For instance, with the advent of the artificial intelligence era, AI is expected to inject new vitality into sexual and reproductive health communication. Scholars have already started to explore this research area (Nadarzynski, Puentes, Pawlak, Mendes, Montgomery, Bayley & Ridge 2021; Njogu et al. 2023). Looking ahead, the integration of social media with artificial intelligence holds the potential to significantly enhance sexual and reproductive health communication and improve both individual and public health and well-being.

5. CONCLUSION

Social media has rapidly developed in recent years and has become the most widely used media channel globally. It is crucial to leverage the advantages of social media to enhance sexual and reproductive health communication, and to promote public health and well-being. Through an in-depth review of 29 articles, this study thoroughly explores the impact of social media on sexual and reproductive health communication and discusses how to better utilize social media as a tool in this context. The findings indicate that the impact of social media on sexual and reproductive health communication is multifaceted. Researchers have explored both positive and negative impacts, identifying three distinct roles that social media can play as a tool. It is suggested that different communication strategies should be employed for various populations to enhance the effectiveness of communication.

AUTHORS' CONTRIBUTIONS:

YueShu Luo: Contributed to the conception, design, and writing of the entire manuscript. Led the data collection, analysis, and interpretation of the literature included in this review. Responsible for drafting and revising the manuscript.

Emma Mirza Wati Mohamad: Provided significant guidance and feedback throughout the manuscript preparation. Reviewed and critically revised the manuscript for important intellectual content.

Arina Anis Azlan: Contributed to the critical revision of the manuscript and provided academic supervision. Offered valuable insights and suggestions to enhance the quality of the work.

Yanli Li: Assisted in the evaluation and selection of the literature included in this review. Worked closely with the first author during the literature assessment process.

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