



BMJ Open Effect of social media interventions on the education and communication among patients with cancer: a systematic review protocol

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To cite: Banaye Yazdipour A, Niakan Kalhori SR, Bostan H, *et al*. Effect of social media interventions on the education and communication among patients with cancer: a systematic review protocol. *BMJ Open* 2022;**12**:e066550. doi:10.1136/bmjopen-2022-066550

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-066550>).

Received 10 July 2022
Accepted 03 November 2022



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ABSTRACT

Introduction Cancer is a leading cause of death worldwide. In addition, it accounted for approximately 10 million deaths in 2020 alone. Information and communication technologies have great potential for improving health education and communication. Social media is one of the technologies that can help patients with cancer and healthcare providers communicate and provide educational information. Social media are increasingly being used for health promotion and behaviour change. This is a protocol of systematic review to identify the effect of social media interventions on the education and communication among patients affected by cancer. This study aims to reveal the steps of conducting research that systematically reviews all studies for the specific objective. This study aims to examine the social media interventions to improve awareness and knowledge about the disease for patients with cancer and improve communication among them.

Methods and analysis This protocol is reported in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols checklist. We will include experimental design studies that report the effect of social media interventions on education and communication among patients with cancer or malignancy and any stage of the disease. Interventions will be inclusive, using all social network platforms for patients' communication and education. We will search PubMed, Web of Science, Scopus and the Cochrane Library from inception until 23 May 2022. Two independent reviewers will screen titles, abstracts and full-text articles with conflicts resolved through discussion or by a third reviewer, as needed. All titles, abstracts and full-text papers will be reviewed independently by two reviewers according to the inclusion and exclusion criteria. Discrepancies will resolve by discussion or SRNK if needed. The two reviewers will also independently complete risk of bias assessments for each included study. The descriptive analysis, including frequency and percentage parameters, will be calculated based on the study's variables. Furthermore, we will report the results of the quality assessment of studies in table format. In the result section, a narrative synthesis will be applied to describe and compare the paper's results.

Ethics and dissemination Ethics approval will not be needed because the data to be used in this systematic

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ To the best of our knowledge, no previous systematic reviews to investigate the effect of social media intervention on education and communication among patients affected by any type of cancer exist.
- ⇒ We will conduct a systematic search in valid electronic databases, including PubMed, Web of Science, Scopus and the Cochrane Library.
- ⇒ We will consider patients with any type of cancer or malignancy and any stage of the disease.
- ⇒ We will consider all social network platforms for patients' communication and education.
- ⇒ This study will be limited to the English language.

review and meta-analysis will be extracted from published studies. It will be disseminated by publication in a peer-reviewed journal.

PROSPERO registration number CRD42022334691.

INTRODUCTION

According to WHO, cancer is a leading cause of death worldwide. In addition, accounting for approximately 10 million deaths in 2020 alone.¹ The most common types of cancer include breast, lung, colorectal, prostate, skin (non-melanoma) and stomach.^{1,2} Due to limited resources contributing to cancer, it is essential to raise awareness, knowledge and understanding of patients about cancer.³⁻⁵

It has been over a decade since the Institute of Medicine first recommended that patients should have an active role in their healthcare.⁶ Information and communication technologies have great potential for improving health education.⁷ Technology also has redefined the way patients and providers communicate and obtain health information.⁸ Social media is one of the technologies that can help patients with cancer and healthcare providers communicate and provide educational information.⁹ The number of social media users has increased significantly in the past decade,

and social media have many opportunities and benefits for healthcare.¹⁰ Social media are widespread web-based or mobile-based platforms that allow individuals to connect with others within a virtual network where they can create, share or exchange digital content in various formats, such as messages, information, photos and videos.¹¹ Social media tools and platforms such as Facebook and Twitter can be essential in public health promotion.^{12 13} They help patients communicate with each other and healthcare professionals and share health information and experiences about disease prevention, symptoms and treatment.^{10 12 14} In addition, they provide emotional and social support for patients with cancer and their healthcare providers.¹⁵ A collaborative and interactive relationship between patients together and patients with healthcare professionals is considered an essential element for patient empowerment and illness management.¹⁶ Due to the ability to share educational content, social media may improve knowledge or awareness of health topics or motivate cancer patients' behaviour change.¹² Social media can facilitate the process of education and communication with patients affected by cancer and healthcare providers. In addition, it leads to saving time and cost.¹⁷

Although systematic reviews were conducted for education^{18–21} and communication^{22–26} with patients with cancer, no systematic review is available to investigate the effect of social media intervention on these specific outcomes. This is the first protocol for a systematic review to identify the impact of social media interventions on education and communication among patients affected by any cancer.

METHODS AND ANALYSIS

Study design

This systematic review protocol was written and reported according to the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols checklist.²⁷

Eligibility criteria

Population, intervention, comparators and outcomes framework

We will use the population, intervention, comparators and outcomes framework for this systematic review to clearly define this review's different components and aid in study selection.

Population

- ▶ Patients with any type of cancer or malignancy and any stage of the disease.

Intervention

- ▶ Using all social network platforms for patients' communication and education.

Comparison

- ▶ Patients receive the same sort of intervention with social media and other ways of education and communication.

- ▶ Some studies will have no comparison or comparator intervention.

Outcome

- ▶ Education-related outcomes, including awareness and knowledge improvement.
- ▶ Communications-related outcomes, such as communication with family members, healthcare providers, same cancer-affected patients and other stakeholders.

Further inclusion criteria

1. Original research papers and proceeding papers.
2. Full text available.
3. Any experimental study (randomised controlled trial (RCT) or quasi-experimental with pre/post design).
4. Studies with English language.
5. No limitation regarding date of publication.
6. Studies focused on the social media for education and communication of patients with cancer.

Exclusion criteria

1. Reviews, meta-analysis, dissertation theses, reports, conference abstracts, letter to editor, commentaries or protocols.
2. Papers written in languages other than English.
3. Full-text of papers were not available.
4. The studies with not enough statistical details regarding the effect of social media of education and communication of patients with cancer.
5. Papers without relevant outcomes (social media of education and communication of patients with cancer).

Information sources

We will conduct a systematic search in electronic databases, including PubMed, Web of Science, Scopus and the Cochrane Library, from inception to 23 May 2022. No restriction related to the date of publication will be applied. Reference lists of included articles will also be handsearched.

Search strategy

We will use a combination of keywords and MeSH terms depending on the database to capture the following concepts: cancer, social media and education and communication. An example of the search strategy for the PubMed database, composed of #1 AND #2 AND #3, will be used as a search strategy in #4, shown in [table 1](#).

Study selection

The results of the searches will be entered into an EndNote library, and duplicates will be removed. Two authors (ABY and HS) will independently assess and screen study eligibility and be involved in study selection. All titles, abstracts and full-text articles will be reviewed independently by ABY and HS according to the inclusion and exclusion criteria. Discrepancies will be resolved by discussion. In case of disagreement among the authors, SRNK will be available for arbitration.

Table 1 PubMed database strategy search

Number	Search strategy
#1	((((((((((("Social Media"[Mesh]) OR ("Social Networking"[Mesh])) OR ("social media"[Title/Abstract])) OR ("Social network"[Title/Abstract])) OR ("social medium"[Title/Abstract])) OR ("social network site"[Title/Abstract])) OR ("social networking site"[Title/Abstract])) OR ("Online social network"[Title/Abstract])) OR (Online social site"[Title/Abstract])) OR ("online communit"[Title/Abstract])) OR ("virtual communit"[Title/Abstract])) OR ("online forum"[Title/Abstract])) OR (SNA[Title/Abstract]))
#2	((((((("Neoplasms"[Mesh]) OR ("cancer"[Title/Abstract])) OR ("tumour"[Title/Abstract])) OR ("tumour"[Title/Abstract])) OR ("neoplas"[Title/Abstract])) OR ("carcinoma"[Title/Abstract])) OR ("malignan"[Title/Abstract]))
#3	"Education"(MeSH Terms) OR "education"[Title/Abstract]OR "train"[Title/Abstract]OR "teach"[Title/Abstract] OR "learn"[Title/Abstract]OR "Communication"(MeSH Terms) OR "communicat"[Title/Abstract]OR "electronic communication"[Title/Abstract]
#4	#1 AND #2 AND #3

Data extraction

We will use a piloted data collection form in Excel (Microsoft, 2019) to extract data from included studies. The two reviewers (ABY and HS) will perform data extraction independently, with discrepancies resolved by discussion or a third reviewer (SRNK).

This form will include the following characteristics from each study, when available:

- ▶ General information: Title, authors, date of publication, journal title, country/geographical area, aim of study and study design.
- ▶ Participants: sample size, age, gender, ethnicity, type of cancer and stage.
- ▶ Intervention: type of intervention (education or communication or both), social media platform, methods of intervention (message, video, image, audio etc), comparison method to intervention, intervention duration, treatment steps (surgery, radiation, chemotherapy).
- ▶ **Outcomes: related measuring indicators for communication and education of patients with cancer by social media intervention.**

Outcomes

In this study, education and communications outcomes through their related measuring indicators will be considered.

Assessment of bias

The risk of bias for the articles selected for this review will be evaluated by two independent appraisers (ABY and HS) using the Joanna Briggs Institute (JBI) critical appraisal checklists for RCTs and quasi-experimental studies.²⁸ The JBI critical appraisal checklist for RCTs includes 13 items to assess randomisation, allocation concealment, baseline outcomes, blinding (participants/deliverers/assessors), follow-up and drop-out, indicators, reliability of assessment tools, study design and statistical methods. The nine-item JBI critical appraisal checklist for quasi-experimental studies includes selection bias, information on the control group, outcome assessment and statistical analysis. Each item will be evaluated using four responses: yes, no, unclear and not applicable. More 'yes'

responses on the appraisal items will be indicated a superior quality study. The criteria will be used to rank the risk of bias, including (1) $\leq 49\%$ = high risk of bias; (2) $50\%–69\%$ =moderate risk of bias; (3) above 70% =low risk of bias. In case of disagreement, the two reviewers consulted a third reviewer (SRNK) to reach a consensus.

Data synthesis and analysis

Based on the study's variables, the descriptive analysis, including frequency and percentage parameters, will be calculated and presented in the frame of graphs and tables. Furthermore, we will report the results of the quality assessment of studies in table format. In the result section, a narrative synthesis will be applied to describe and compare the paper's results. Meta-analysis is not the aim of this systematic review due to the diversity of outcomes and results.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Ethics and dissemination

Ethics approval will not be needed because the data to be used in this systematic review and meta-analysis will be extracted from published studies. It will be disseminated by publication in a peer-reviewed journal.

DISCUSSION

The proposed systematic review will identify the effect of social media interventions on education and communication among patients affected by any cancer. Several studies have been conducted in the field of education and communication for patients with cancer. However, their focus has not been on social media. For example, Howell *et al* reported on the effect of self-management education interventions for patients with cancer.¹⁸ Hong *et al* reported identifying the existing digital interventions to improve patient-provider communication among patients with cancer.²³ Our review will include patients with any cancer or malignancy and any stage of disease

and the use of all social network platforms for patients' education and communication. To the best of our knowledge, there has not been any systematic review of the effects of social media interventions on education and communication among patients with cancer. This will be the most comprehensive and up-to-date systematic review as it relates to social media interventions on the education and communication among patients affected by any cancer.

The evaluation of this systematic review will be divided into four sections: identification, study inclusion, data extraction and data synthesis. The review will be limited to the English language, which may result in exclusions of potentially relevant studies published in other languages. To minimise selection bias regarding the studies included in the review, we will use two independent reviewers to conduct the screening and a third reviewer to resolve conflicts.

Contributors ABY, SRNK and HS conceived the idea for the review. ABY, SRNK and HS wrote the protocol. HB, HM and EA critically appraised the protocol and contributed to its development by revising different versions. All authors read and approved the final version of the manuscript for submission.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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