

## Perceptions of who is in the healthcare team? A content analysis of social media posts during COVID-19 pandemic

Alla El-Awaisi, Veronica O'Carroll, Somaya Koraysh, Sarra Koummich, Marion Huber

### Item type

Journal Contribution

### Terms of use

This work is licensed under a [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/) license

### This version is available at

[https://manara.qnl.qa/articles/journal\\_contribution/Perceptions\\_of\\_who\\_is\\_in\\_the\\_healthcare\\_team\\_A\\_content\\_analysis\\_of\\_social\\_media\\_posts\\_during\\_COVID-19\\_pandemic/27951399/1](https://manara.qnl.qa/articles/journal_contribution/Perceptions_of_who_is_in_the_healthcare_team_A_content_analysis_of_social_media_posts_during_COVID-19_pandemic/27951399/1)

Access the item on Manara for more information about usage details and recommended citation.

Posted on Manara – Qatar Research Repository on

2020-09-22



## Perceptions of who is in the healthcare team? A content analysis of social media posts during COVID-19 pandemic

Alla El-Awaisi, Veronica O'Carroll, Somaya Koraysh, Sarra Koummich & Marion Huber

**To cite this article:** Alla El-Awaisi, Veronica O'Carroll, Somaya Koraysh, Sarra Koummich & Marion Huber (2020) Perceptions of who is in the healthcare team? A content analysis of social media posts during COVID-19 pandemic, Journal of Interprofessional Care, 34:5, 622-632, DOI: 10.1080/13561820.2020.1819779

**To link to this article:** <https://doi.org/10.1080/13561820.2020.1819779>



© 2020 The Author(s). Published with license by Taylor & Francis Group, LLC.



Published online: 22 Sep 2020.



Submit your article to this journal [↗](#)



Article views: 10486



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 26 View citing articles [↗](#)

## Perceptions of who is in the healthcare team? A content analysis of social media posts during COVID-19 pandemic

Alla El-Awaisi , Veronica O'Carroll , Somaya Koraysh , Sarra Koummich , and Marion Huber<sup>c</sup>

<sup>a</sup>College of Pharmacy, QU Health, Qatar University, Doha, Qatar; <sup>b</sup>School of Medicine, University of St Andrews, St Andrews, UK; <sup>c</sup>ZHAW School of Health Professions, Zurich University of Applied Sciences, Zurich, Switzerland

### ABSTRACT

Social media posts can be used to explore public perceptions of interprofessional teams and healthcare professionals. The aim of this study was to use social listening technique to explore unfiltered public perceptions of the professionals involved in healthcare teams during the COVID-19 pandemic, in a naturalistic online setting, and to elaborate on the emotional reactions in response to an online social media post. A cross-sectional retrospective review of comments on a specific social media post was conducted between 15 March and 28 April 2020 using summative content analysis. One image that was widely circulated on social media platforms with two questions: 'Who society thinks works at hospital? versus who really works at hospitals?' was selected. Three platforms were searched, Facebook®, Twitter®, and LinkedIn®. Only publicly available posts were included. Out of the initial 40 posts identified, 21 posts which had 1759 comments were analysed and 1576 were included for coding. Of the emerging nine themes, perceptions of who is in the team was the largest (40.5%, *n* = 639), followed by agreement (23.1%, *n* = 364) and feeling excluded (16.2%, *n* = 255). Of emotional expressions, 42.1% were positive and 57.9% negative. The most frequent emotions were frustration (54.4%, *n* = 857) followed by gratitude (16.3%, *n* = 257) and relief (15.9%, *n* = 250). The post brought considerable attention to the role of the interprofessional team and generated many feelings of frustration and exclusion. For this reason, the response to this social media post is very important and not to be overlooked. Healthcare professionals need to work together to strengthen their presence as an interprofessional team, united to deliver safe effective quality care for patients. The current COVID-19 pandemic and the media attention should be taken as an opportunity by the interprofessional community to work together to combat negative media stereotypes. Further research is warranted on public perceptions of the healthcare team.

### ARTICLE HISTORY

Received 31 May 2020  
Revised 16 July 2020  
Accepted 27 August 2020

### KEYWORDS

Interprofessional collaboration; social Media; content analysis; COVID-19; roles; healthcare team

### Introduction

The interprofessional nature of healthcare delivery worldwide has recently received considerable attention during the COVID-19 pandemic; recognising the diverse professions involved in the delivery of healthcare (Bauchner & Easley, 2020). This is not a surprise with the movement toward strengthening interprofessional teams and promoting a collaborative practice environment where healthcare professionals are able to respond to healthcare needs and mitigate global health crisis (Institute of Medicine, 2015; World Health Organisation, 2010). Collaboration is based on a culture where members of healthcare team are empowered to embrace change, engage with innovation and each contribution is valued (Lindqvist et al., 2017). Unfortunately, media portrayal of healthcare delivery and many fictional dramatisations, has historically tended to focus on the roles of physicians and nurses, often with outdated gender stereotypes and professional hierarchies (Mitchell, 2019). Nurses viewed media portrayal of their profession predominantly negatively influencing public views and expectations about nurses and contributing to low staff morale (Hoyle et al., 2017). Similarity, negative portrayal of pharmacist was observed in another retrospective observational descriptive study exploring film and television

portrayals of pharmacists from 1970 to 2013 (Yanicak et al., 2015). Media portrayal of nurses' perspectives in the SARS crisis did, however, highlight a more realistic image of the complexity of the nursing practices, whilst recognising them as professionals risking their lives in the course of their work (Hall et al., 2003).

The COVID-19 pandemic has highlighted that along with physicians and nurses, other professional staff including healthcare assistants, porters, pharmacists, radiographers and dentists (to mention a few), have significant patient-facing roles that have resulted in risk to their lives (Cook et al., 2020). A recent editorial in JAMA has also lauded the diverse professions involved in responding to the recent pandemic caused by COVID-19 (Bauchner & Easley, 2020). In spite of the recognition of the diverse health and social care professionals involved in providing essential health services during the pandemic, public perceptions of the healthcare team has often focused mainly on the roles of physicians and nurses. Public perceptions of the members of health and social care teams are often based on stereotypes, which Turner describes as: "social categorical judgements of people based on their membership to a certain group" (Turner, 1999). Addressing these stereotypes and improving public and health professionals' awareness of professional roles, are integral to effective

interprofessional team-working, respect and professionalism, required to deliver essential healthcare (World Health Organisation, 2010).

## Background

In 2018, in response to the limited public perception of healthcare teams, the Society of Radiographers in the United Kingdom (professional body for the diagnostic imaging and radiotherapy) issued a leaflet entitled: 'The NHS is NOT just doctors and nurses'. Within this leaflet, they highlighted that each member of the healthcare team provides valuable contribution to patient care based on their unique skills and expertise (The Society of Radiographers, 2018). This sentiment was echoed in a media coverage in the Guardian newspaper (Johnson, 2018). Recently within the media, individual health professionals have appealed to the public to remember that 'it's not just NHS physicians and nurses who need your kindness', but also other healthcare professionals and workers who are working hard behind the scenes with much lower salaries (FitzPatrick, 2020). Patient satisfaction has been linked with team-based care (Will et al., 2019), however patients' knowledge of the healthcare team is not always reflective of the diverse professions involved in their care (Parsons et al., 2016). Public perceptions of interprofessional teams and the attributes needed for their effectiveness seem to be under-represented in the literature (Cutler et al., 2019).

The use of social media platforms to convey public opinion and attitude, has expanded rapidly over the last decade on topics related to public health, infectious disease and behavioural medicine (Dol et al., 2019; Sinnenberg et al., 2016). Social media platforms are seen as an instant method to communicate with the public (Neiger et al., 2012; Waring et al., 2019) and an opportunity to provide better understanding of the roles of healthcare professionals to better shape public perceptions (Antonoff & Stamp, 2017; Gill & Baker, 2019; Silva & Freischlag, 2017). It is argued that sharing and retweeting posts on social media, is not simply to attract new audience but to validate others' perspective, publicly agree or disagree with the person posting, adding new content and engaging with others (Boyd et al., 2010). One systematic review, with 137 included articles, identified four uses of twitter by healthcare researchers which include (Sinnenberg et al., 2016):

- (1) content analysis of tweets to particular health topics such as smoking, diabetes and obesity (56%); it also included sentiment analysis of positive and negative discussion on specific topics such as vaccination (15%) and image analysis (1%).
- (2) surveillance of tweets volume regarding specific topics such as Ebola and influenza (26%); prediction to estimate prevalence of behaviour or disease, i.e. influenza infection and heart disease mortality (5%);
- (3) engagement of twitter users with tweets, posts, account followers as it relates to public health campaign or adoption of social media by some organisations (14%);

- (4) network analysis of twitter users as they relate to connection between specific groups, i.e. cancer patient communities (4%)

Furthermore, healthcare researchers have used social media platforms to recruit participants for research projects and for related interventional studies (Sinnenberg et al., 2016).

Social media analysis has been used in epidemics and outbreaks for various purposes including digital epidemiology, providing important insights into online content, negating rumours and the spread of inaccurate information and exploring perspectives and sentiment of the public (Roy et al., 2020). The COVID-19 pandemic has resulted in a widespread activity on social media from hysteria, fear, spread of misinformation and inaccurate judgment of literature to sharing positive experiences and efforts from around the globe and the 'tales of unimaginable sacrifices' of frontline healthcare professionals (Rosenberg et al., 2020). Remarkable attention has been given to healthcare professionals during the pandemic, frequently characterising healthcare workers on social media, as #heroes, #FrontLineHeroes, #frontlineworkers, #HelpThemHelpUs, #NHSworkers, #ClapForCarers, #HealthcareHeroes and many more. One of the emerging methodologies to explore public perceptions, is through social media content analysis (Chou et al., 2014; Scanfeld et al., 2010; So et al., 2016). As literature related to public perceptions of interprofessional teams is limited, social media content analysis is a potential tool to inform the study of public perceptions of interprofessional teams, and to investigate the potential roles of social media platforms in a global pandemic.

## Aim

The aim of this study was to use social listening technique to explore unfiltered public perceptions of the professionals involved in healthcare teams during the COVID-19 pandemic, in a naturalistic, online setting, and to elaborate on the emotional reactions in response to an online social media post.

## Methods

### Study design

A cross-sectional retrospective observational review of comments to a specific social media post was undertaken. Content analysis is well-known research method used in communication research and social media analysis (Krippendorff, 2019; Skalski et al., 2017). Different approaches to content analysis exist including summative content analysis which was used in this study to quantify the social media posts analysed (Hsieh & Shannon, 2005). This approach starts with identifying themes followed by quantifying the frequency of theme recurrence and interpreting the underlying meaning and context (Braun & Clarke, 2006; Hsieh & Shannon, 2005). Basic descriptive statistics, i.e. frequencies and percentages of themes and discrete emotions were calculated. Social listening techniques were conducted to capture public perceptions as this approach is able to gather unfiltered public perceptions and avoid the Hawthorne effect where participant may change their

behaviour if they are aware they are being studied or may not participate (Keller et al., 2017; McCambridge et al., 2014).

### Data collection

An online search using Google Images for the three platforms: Facebook®, Twitter®, and LinkedIn®, was conducted through reverse image search (Figure 1) to identify social media posts. Comments submitted in response to a specific social media post between March 15<sup>th</sup> and April 28<sup>th</sup> 2020 were collected. The post was an image that was widely circulated on social media platforms, during the COVID-19 pandemic, with two questions ‘Who society thinks works at hospital? vs who really works at hospitals?’ (Figure 1) (Chaplan, 2020).

Posts were eligible if they were available to public with no privacy settings, relevant comments to the discussed topic, and yielded discrete emotions. Posts were excluded if they had no comments, had irrelevant comments, comments were tags only, had non-discrete emotions, had emojis with multiple or undiscerned meanings, inaccessible comments, and comments that were written in languages other than English. Two independent reviewers (SKK and SAK) identified manually eligible posts for screening. Posts that did not meet the inclusion criteria were excluded from the screening process. Discrepancies and uncertainties were resolved by consensus or through discussion with a third independent reviewer (AE). The screening process was piloted to ensure inter-rater reliability between assessors.

### Coding instrument

Three members of the research team (AE, SK, SAK) reviewed a set of randomly selected comments and inductively coded them based on the main content of the post. An iterative process of review and discussion with other coders and other research team members took place until a consensus was reached on the coding procedure and the coding instrument that was used to allow for structuring, labelling and defining data. Codes were grouped initially into nine main content themes: agreement, feeling excluded, hierarchy, media portrayal, perceptions of who is in the team and respect, teamwork and unfamiliarity with some professions. Furthermore, the expression of discrete emotions provoked by the comment was mapped to the basic emotions by discrete emotion theorist Robinson (Robinson, 2008). The present study draws upon the basic emotions articulated by him where he classifies emotions to eleven pairs of positive or negative emotions based on reviewing different theories on the subject. Positive emotions include hope, gratitude, pride and sympathy. While negative emotions include anger, frustration, embarrassment and alarm (Robinson, 2008).

### Data extraction and coding

Data extraction was independently done by two reviewers (SKK and SAK). Each comment was considered as a unit of analysis (So et al., 2016). Eligible posts were selected and all comments written in response to the image posted were extracted to Microsoft Excel® 2020 version 16.37. Two coders

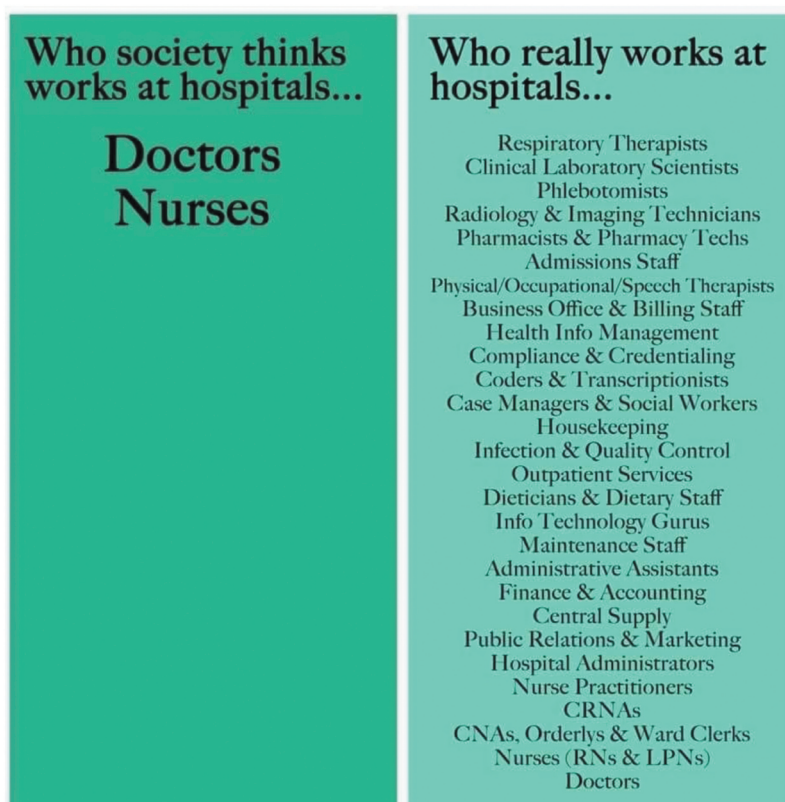


Figure 1. Illustration of who society thinks works in hospitals versus who actually works there.



(SK, SAK) then coded the rest of the data set independently based on the predefined emotions and themes. Multiple coders were used to improve the coding process and inclusion of various perspectives. Any disagreements arising between the coders was resolved through discussion to reach consensus, or with a third independent researcher (AE). AE reviewed the final coded comments.

Social media engagement including number of likes, comments and shares/retweets for the eligible posts were extracted to Microsoft Excel®. Engagement with social media posts represents different levels and are calculated differently. Popularity is calculated through number of likes per post; commitment through number of comments and virality through number of shares with the latter representing the highest behavioural level (Kim & Yang, 2017; Liao et al., 2020). Moreover, professions that were not included in the image and were reported in the comments were divided into three categories: healthcare, non-healthcare professionals and another group that possibly span both.

### **Ethical approval**

Qatar University Institutional Review Board (QU-IRB) has determined that this study did not meet the definition of human subject study and hence not subject to QU-IRB review, approval, and jurisdiction (QU-IRB 004-NR/20). This was on the basis that this study was a review of publically available social media posts and did not involve interactions with human subjects. All social media posts used in this study were publicly available and viewable to any website visitor. The study did not involve interactions with human subjects. QU-IRB further recommended that direct quotes and verbatim posts should not be used to maintain anonymity and confidentiality of social media users. Keywords or paraphrased quotes were used instead of illustrative quotes though previous researchers have argued social media users have agreed to the terms and conditions of the different social media platforms and are publically engaged in discussions (Shepherd et al., 2015). The data were obtained without any private or identifying information and a large sample size of posts were analysed ( $n = 1759$ ).

### **Results**

A total of 40 social media re-posts were initially identified by the research team; of these, 19 posts were excluded due to privacy, duplication, or absence of comments, leaving 21 eligible posts from Facebook and Twitter that yielded a sum of 1759 comments (Figure 2). Upon reviewing the data, exclusion of 183 comments was deemed appropriate as they were irrelevant to the posts' content. The posts were shared on social media platforms between 15/03/2020 and 28/04/2020, with the majority of comments being retrieved from Facebook posts specifically, one Facebook post – posted on April 5<sup>th</sup>, 2020 – had contributed to the study's pooled data largely as it contained more than 1500 comments, 9100 likes, and 200000 shares. Four other posts – two from Twitter and two from Facebook – had noticeably high engagement rates from the audience (Table 1).

### **Discrete emotions evoked by the post**

Descriptive statistics of collected emotions are viewed in Table 2. The post evoked multiple positive and negative discrete emotions from post viewers; however, certain emotions were detected as the most mutually felt by commenters, most of which can be described as an event-related emotion.

### **Positive emotions evoked by the post**

Out of the 1576 comments included, 42.1% ( $n = 664$ ) reflected an overall positive perceptions by the commenters. The most frequently reported positive emotion was gratitude for other healthcare teams as well as appreciating their contributions in provision of needed care (16.3%). Many commenters were thankful to see this post and acknowledged the need to be reminded that many healthcare and non-healthcare professionals are risking their lives and working around the clock to ensure the safety of patients. The other most reported positive emotion was relief ( $n = 15.9$ , 15.9%), which reflected the audience general acceptance to the post's contents; the post also reflected some reassured commenters' after seeing some less-common professions being recognised such as speech therapists. Furthermore, many emphasised the need to recognise everyone who plays a significant role including cleaners, receptionist, janitors and volunteers. The word 'Heroes' was commonly used.

### **Negative emotions evoked by the post**

A higher percentage of comments seemed to resonate a negative perceptions from the commenters (57.9%), which was mainly caused by commenters' frustration toward the posts' content ( $n = 857$ , 54.4%), as it seemed to leave various professions that contribute to hospitals' performance. One of the commenters pointed out how the physician assistants who have been on the frontlines during the current pandemic but still do not get the credit they deserve. Some other commenters expressed frustration upon how the media portrays healthcare teams focusing on doctors and nurses as the only professions providing patient care. One of the commenters disliked the use of frontline as it infers there is a backline that does not matter. Many felt their jobs are 'overlooked' or are not getting the credit deserved though they are at the frontline, i.e. physician assistant.

### **Key highlights inferred from comments on the post**

To supplement the data collected about discrete emotions, the comments were further analysed to assess emergent key themes in relation to public perceptions of about healthcare workers. Identified key highlights can be viewed in Table 3 with illustrative quotes. The most commonly reflected themes were "perceptions of who is in the team" ( $n = 639$ , 40.5%), "agreement" ( $n = 364$ , 23.1%), and "feeling excluded" ( $n = 255$ , 16.2%). It was noted that certain discrete emotions highly resonated and contributed to the emergence of these themes; to demonstrate, commenters who agreed on the posts' contents expressed feelings of gratitude, relief, and love. As previously

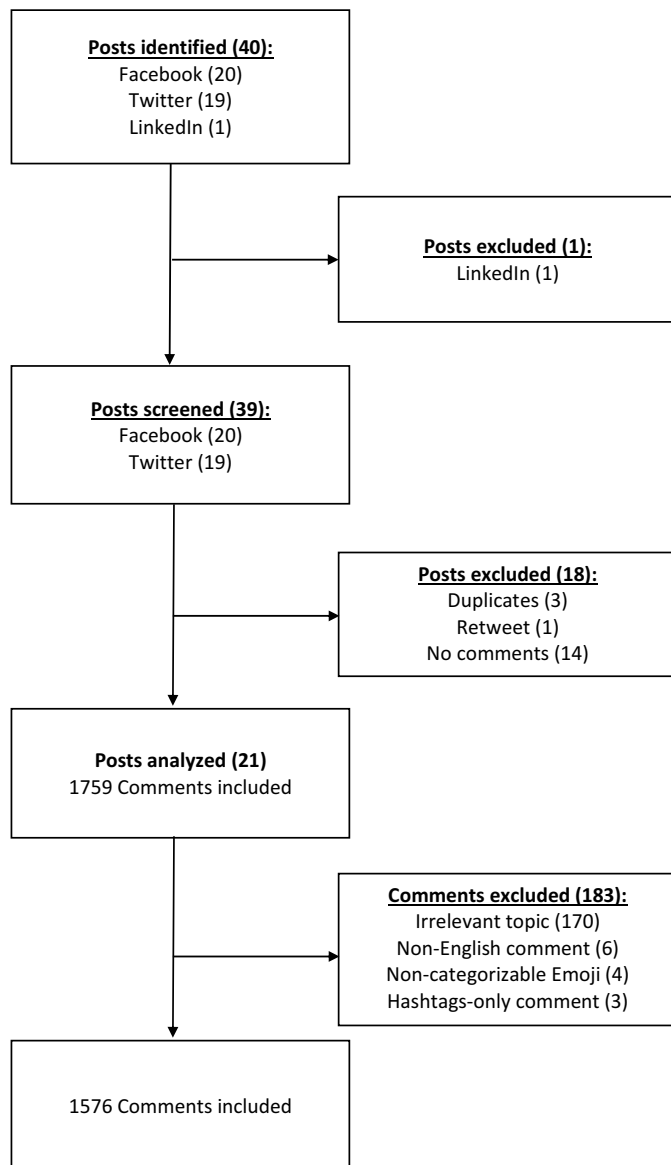


Figure 2. Chart for the comments' collection process.

Table 2. Discrete emotions evoked by the post.

Kind of emotion	Positive emotion	n	%	Negative emotion	n	%
Emotions related to object properties	Interest	8	0.5%	Alarm	6	0.4%
	Attraction	0	0.0%	Aversion	0	0.0%
	Surprise	23	1.5%	Indifference	3	0.2%
	<b>Total</b>	<b>31</b>	<b>2.0%</b>	<b>Total</b>	<b>9</b>	<b>0.6%</b>
Future appraisal emotions	Hope	5	0.3%	Fear	0	0.0%
	<b>Total</b>	<b>5</b>	<b>0.3%</b>	<b>Total</b>	<b>0</b>	<b>0.0%</b>
Event related emotion	Gratitude	257	16.3%	Anger	38	2.4%
	Joy	27	1.7%	Sorrow	7	0.4%
	Relief	250	15.9%	Frustration	857	54.4%
	<b>Total</b>	<b>534</b>	<b>33.9%</b>	<b>Total</b>	<b>902</b>	<b>57.2%</b>
Self-appraisal emotions	Pride	50	3.2%	Embarrassment	0	0.0%
	<b>Total</b>	<b>50</b>	<b>3.2%</b>	<b>Total</b>	<b>0</b>	<b>0.0%</b>
Social emotions	Generosity	0	0.0%	Avarice	0	0.0%
	Sympathy	6	0.4%	Cruelty	1	0.1%
	<b>Total</b>	<b>6</b>	<b>0.4%</b>	<b>Total</b>	<b>1</b>	<b>0.1%</b>
Cathected emotions	Love	38	2.4%	Hate	0	0.0%
	<b>Total</b>	<b>38</b>	<b>2.4%</b>	<b>Total</b>	<b>0</b>	<b>0.0%</b>
Overall		42.1%			57.9%	

Table 1. Retrieved posts from social media platforms.

#	Platform	Number of likes	Number of comments	Number of retweets/retweets with comments/shares
1	Facebook	46	-	11
2	Facebook	9100	1600	200000
3	Facebook	224	32	163
4	Twitter	28	1	10
5	Twitter	56	3	26
6	Facebook	3	-	-
7	Twitter	90	2	32
8	Twitter	18	1	8
9	Facebook	7	-	15
10	Facebook	52	6	72
11	Twitter	1500	67	566
12	Twitter	104	3	46
13	Twitter	43	1	14
14	Twitter	43	1	14
15	Facebook	-	-	-
16	Twitter	9	-	1
17	Twitter	2	-	1
18	Facebook	12	-	3
19	Facebook	5	3	2
20	Facebook	12	-	3
21	Facebook	105	4	66
22	Facebook	5	3	2
23	Twitter	32	-	8
24	Twitter	7	-	7
25	Facebook	325	10	99
26	Facebook	12	-	2
27	Facebook	2	-	1
28	Twitter	241	7	115
29	Twitter	3	1	2
30	LinkedIn	251	13	51
31	Twitter	83	5	8
32	Facebook	31	-	7
33	Facebook	79	1	240
34	Facebook	78	24	2
35	Facebook	4200	125	1500
36	Facebook	1000	35	545
37	Twitter	451	18	191
38	Twitter	2600	100	826
39	Twitter	2	-	2
40	Twitter	-	-	-

mentioned, multiple commenters openly expressed their disappointment, frustration, and even sadness toward the post as it excluded some of the roles they actively play or witness in hospitals yet are not acknowledged. The main theme however emerged from the plethora of comments dedicated to adding professions' titles to the list and raising awareness about their contribution to the workflow in the hospitals. A total of 126 professions seemed to have been missing from the table as per commenters including 49 healthcare-related professions, 62 non-healthcare-related professions and 15 professions that can overlap between the two. The most commonly mentioned professions were physician assistants ( $n = 124$ , 14%), public safety/security ( $n = 89$ , 10%), and surgical technologists ( $n = 62$ , 7%). A summary of the mentioned health and non-healthcare professionals is listed in Table 4.

## Discussion

The focus of the study was to explore public's emotional reactions to an online social media post. The post asked who society thinks works at hospitals? versus who really works at hospitals?. "Perceptions of who is in the team", "feeling of exclusion", and "agreement" with the post were the most

**Table 3.** Identified key themes inferred from the comments.

Key themes	N	%	Keywords/paraphrased quotes
Agreement	364	23.1%	<ul style="list-style-type: none"> <li>• Absolutely;</li> <li>• Right;</li> <li>• Finally, it is said;</li> <li>• Yes;</li> <li>• True;</li> <li>• Agreed;</li> <li>• Exactly;</li> <li>• Well said.</li> </ul>
Feeling excluded	255	16.2%	<ul style="list-style-type: none"> <li>• We are invisible;</li> <li>• Forgotten;</li> <li>• Always left out;</li> <li>• No respect for;</li> <li>• Does not exist;</li> <li>• Missed from the list;</li> <li>• Excluded;</li> <li>• Do not get enough credit;</li> <li>• I am overlooked;</li> <li>• No clapping for us;</li> <li>• No one remembers;</li> <li>• Missing.</li> </ul>
Hierarchy	55	3.5%	<ul style="list-style-type: none"> <li>• Considered “non-essential”;</li> <li>• Move my profession to the top of the list;</li> <li>• We are always at the bottom of list.</li> </ul>
Media portrayal	10	0.6%	<ul style="list-style-type: none"> <li>• News focusses mostly on doctors and nurses;</li> <li>• Media thinks;</li> <li>• ‘Frontline’ is a new word used by politicians;</li> <li>• TV shows view only doctors and nurses;</li> <li>• Main-stream media keeps using only the terms “doctors and nurses”;</li> <li>• The media forget the other professions.</li> </ul>
Perceptions of who is in the team	639	40.5%	<ul style="list-style-type: none"> <li>• Hospitals are ran by more than just doctors and nurses;</li> <li>• Many healthcare workers are on the frontline;</li> <li>• Food staff should be on the list;</li> <li>• Add physician assistants to the list.</li> </ul>
Respect	115	7.3%	<ul style="list-style-type: none"> <li>• A big thank you for recognising the efforts of everyone involved in the loop of care;</li> <li>• Huge respect;</li> <li>• Bless everyone in the frontline;</li> <li>• You are as important.</li> </ul>
Teamwork	89	5.6%	<ul style="list-style-type: none"> <li>• It is all about teamwork;</li> <li>• It takes a village;</li> <li>• It is a team effort;</li> <li>• Doctors and nurses need the rest of the team.</li> </ul>
Unfamiliarity with some professions	49	3.1%	<ul style="list-style-type: none"> <li>• First time hearing about surgical technologist;</li> <li>• Are radiologic technologists and technicians not the same?;</li> <li>• What is the difference between food service workers and dietary workers?;</li> <li>• What is the job of a recreational therapist?</li> </ul>

common key highlights. Exploring the main findings of this study through a psychology lens, these highlights could be categorised as cognitive (knowledge and experience based), emotional, and a mix of cognitive and emotional reactions. A central psychological factor for sharing behaviour on social media is the need to spread emotional information through social sharing of emotional experiences or emotional reactions to something observed (Rimé, 1995). People are likely to process these emotions based on their own assumptions, beliefs and expectations (Rimé, 1995). Emotional consideration is of equal consideration to the cognitive factors as it impacts the discussion tone and the way users participate and share information on online platforms (Savolainen, 2015; So et al., 2016).

### ***“Perceptions of who is in the team”***

This post suggested that the most commonly perceived professions in healthcare are nurses and physicians. From

the cognitive lens, this may come from a range of experiences, professional and public knowledge, and general awareness of different working healthcare contexts. Stereotypical perceptions may be reinforced by language that is often used to describe healthcare teams (Gorham, 1999). For example, the use of “front line” and “back line” as terms to describe some groups of professions possibly compounds the public perception that some professions are more visible, and for that, perceived as more important. It is useful here to consider the social scientific discussion to explain opinion forming and the influence of peers, and affect of social media (Brighenti, 2010). During the Covid-19 pandemic, the terms “front line” and “back line” have been used frequently in all kinds of media, often as an analogy of war. These terms were used to differentiate “tiers of soldiers” and thus divisions within healthcare. Therefore all professions, which are connected to “front-line” are memorable than others, especially the ones who are not directly related with healthcare (e.g., security).



**Table 4.** Other professions mentioned by commenters on the post to be included.

Healthcare Professionals		Non-healthcare Professionals	
<ul style="list-style-type: none"> <li>Anaesthesia technologist/ anaesthesiologists</li> <li>Anatomical pathology technicians</li> <li>Audiologists</li> <li>Behavioural health technicians</li> <li>Certified nurse assistants</li> <li>Certified nurse midwives</li> <li>Child Life Specialists</li> <li>Chiropractors</li> <li>Dentists/ oral surgeons</li> <li>Diagnostic medical sonographers</li> <li>Dialysis technicians</li> <li>Emergency medical technicians</li> <li>Health care aids</li> <li>Histology technicians</li> <li>Hospice staff</li> <li>Laboratory staff and technicians</li> <li>Medical assistants</li> <li>Medical physicists</li> <li>Midwives</li> <li>Monitor technicians</li> <li>Music therapists</li> <li>Neurodiagnostic technicians</li> <li>Nuclear Medicine Technologists</li> <li>Obstetrics/ Gynaecology</li> </ul>	<ul style="list-style-type: none"> <li>Occupational therapy</li> <li>Surgical technicians</li> <li>Orthotics and prosthetics staff</li> <li>Paramedics</li> <li>Pathology staff</li> <li>Perfusionists</li> <li>Phlebotomist</li> <li>Physician assistants</li> <li>Physiotherapists</li> <li>Podiatrists</li> <li>Polysomnographic technologists</li> <li>Psychologists</li> <li>Psychiatrists</li> <li>Radiation therapists</li> <li>Radiologic technologists</li> <li>Recreation therapists</li> <li>Registered psychiatric nurse</li> <li>Rehab assistants</li> <li>Respiratory therapist</li> <li>Speech language pathologist/ therapists</li> <li>Sterile processing technicians</li> <li>Vascular tech/ ultrasound</li> <li>Veterinary professionals</li> <li>X-ray technicians, radiology and imaging staff</li> </ul>	<ul style="list-style-type: none"> <li>Catering Assistants &amp; Chefs</li> <li>Accountants</li> <li>Assisted living practioners</li> <li>Biomedical engineers</li> <li>Biomedical technicians</li> <li>Buyers</li> <li>Carpenters</li> <li>Cashier</li> <li>Chaplains</li> <li>Child protection workers</li> <li>Cleaning staff</li> <li>Clinical coders</li> <li>Construction workers</li> <li>Contractors</li> <li>Cooks/ kitchen staff</li> <li>Couriers</li> <li>Electricians</li> <li>Environmental health and safety department</li> <li>Facilities team</li> <li>Field engineers</li> <li>Firefighters</li> <li>Floor care technicians</li> <li>Fundraising staff</li> <li>Gait analysis engineers</li> <li>Gift shop, pastoral</li> <li>Guest services</li> <li>Hospitalists</li> <li>Human resources staff</li> <li>HVAC installers</li> <li>Interpreters/ translators</li> <li>IT staff</li> <li>Janitors</li> <li>Laundry staff</li> <li>Liaisons</li> <li>Lobbyists</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance</li> <li>Material management</li> <li>Maternity services</li> <li>Medical office assistants</li> <li>Medical scribes</li> <li>Morgue/ mortuary staff</li> <li>Nutritional/ food service</li> <li>Painters</li> <li>Parking attendants</li> <li>Patient attendees</li> <li>Patient care assistant</li> <li>Photographers</li> <li>Play therapists</li> <li>Plumbers</li> <li>Receptionists</li> <li>Registration clerks</li> <li>Risk management</li> <li>Security/ public safety</li> <li>Service ambassadors</li> <li>Social workers</li> <li>Stores Staff, Inventory Controllers, material management, supply chain</li> <li>Switchboard operators</li> <li>Telecommunications operators</li> <li>Telemetry techs</li> <li>Therapy dogs</li> <li>Transcription</li> <li>Transporters/ speciality transporters</li> <li>Vendors</li> <li>Volunteer coordinator and management</li> <li>Volunteers</li> </ul>
<b>Overlapping</b> <ul style="list-style-type: none"> <li>Acute care representatives</li> <li>Librarians</li> <li>Case managers</li> <li>Health information/ medical records clerks</li> <li>Infectious control</li> <li>Lactation consultants</li> <li>Medical Secretaries</li> <li>Patients advocates</li> <li>Personal Support Workers</li> <li>Referral coordinator</li> <li>Researchers/ research staff</li> <li>Risk management manager</li> <li>Unit coordinators</li> </ul>			

Furthermore, assuming that only about 23% patients know the name of their attending physician or nurse, it is not surprising that the general public has limited knowledge or awareness of all of the various professions who work in a hospital (Makaryus & Friedman, 2005).

The changing scope of practice, development of new roles in healthcare, and knowledge of existing roles can be confusing for people who work within healthcare, let alone for the general public. In addition, the discussion worldwide of the necessity for interprofessional collaboration raises also a large variation of new roles and professions. Raising awareness amongst the general public of “who is in the healthcare team” and how members may differ in different care contexts is vital. Social media could potentially be a valuable platform to raise this awareness, especially the important input contributed by those perceived as “back-line” professions (Ahmed et al., 2019).

### ***“Feeling of exclusion”***

The feeling of exclusion was connected with negative emotions of disappointment, frustration, and anger evident in the range of comments that were analysed. These results are consistent with the results of Blackhart et al (Blackhart et al., 2009). In a meta-analysis they were able to show that “feeling excluded” leads to negative expressions of emotion. This is also constantly evident in the social media (Blackhart et al., 2009). The most visible professionals during the COVID-19 situation have been physicians and nurses. The media in general may have added to this portrayal by regularly reporting events and activities only involving these two groups of professions. This could have a negative influence on low self-esteem and exacerbate feelings of exclusion (Campbell et al., 1991). Furthermore, being excluded raises more social pain which can lead to more negative emotions (Onoda et al., 2010). The feeling of being

excluded is also reinforced by stereotypes. There are assumptions that the frequency with which, for example, certain professions are presented in social media is responsible for stereotyping (Gorham, 1999). In a recent qualitative study, patients felt healthcare professionals usually introduced themselves as individuals rather than members of the healthcare team (Cutler et al., 2019). This could be attributed to the fact is that certain healthcare professionals do not feel they are a contributing member to the healthcare team (Delva et al., 2008). In another study, patients agreed on the need to have a good mix of professionals in the healthcare team but highlighted the team should not be oversized to ensure its effectiveness and called for appropriate team composition (van Dongen et al., 2017).

Physicians and nurses were very often portrayed as heroes in the COVID-19 era because they maintained healthcare while “everyone else” was supposed to stay at home. However, this does not correspond to reality. Especially in a hospital, there was a need for various other professions, such as laboratory staff, cleaning staff, etc. to help maintain the hospital and the healthcare services. Thus, the perceived reality is influenced by stereotypes. An incorrectly perceived reality of many leads to a feeling of not being perceived and valued and thus to a “feeling of exclusion” (Gorham, 1999).

### **“Agreement”**

This post clearly resonated with a number of people who commented or re-posted. Agreement with the post was evidenced through positive emotions of gratitude, joy and relief and through a psychology lens, reflected both emotional and cognitive reactions. In considering the reasons why people re-post social media comments, Lee (2016) discusses the three domains of prosocial motivations, including: egoistic, altruistic and reciprocity (Lee, 2016). Their study concluded that people driven by altruistic motivation and more like to re-post (Lee, 2016). In applying Lee’s (2016) to our study, it is possible that the motivation for this post came from an altruistic concern for others and to send the message that the interprofessional team is much wider and inclusive of a range of disciplines and professionals that all play a part in the delivery of care. These could be dominant emotions expressed during the difficult time of Covid-19 where there is increased focus on healthcare practice and where specific professional groups are placed under the media spotlight. However, they provide insight into a perspective that the healthcare team should be recognised for including a wider range of professionals and disciplines. The commenters of this post seem to realise that healthcare is more than just physicians and nurses and utilise the opportunity to promote the wider interprofessional team. One could also see this as learning by social media. The fact that social media in particular stand out as a teaching tool is discussed by (Gaál et al., 2015). Although difficult to confirm whether it was health-related or non-health-related professions who agreed most with this post, if it was predominantly health-related professions, the theory of social identity could explain why agreement was a key highlight (Ellemers et al., 2002; McKinley et al., 2014).

These findings highlight the potential of social media to raise public awareness of who is in the healthcare team (Lee, 2016). An interprofessional team does not necessarily have to comprise of only healthcare-related professionals. The reactions to this particular post underline that many non-healthcare related professions are involved in the wider delivery of healthcare and want their involvement to be recognised and acknowledged.

### **Limitations**

There are a number of limitations associated with this study which are commonly associated with conducting research into social media. In this study, a sampling frame could not be used to select target population. No information was collected about the people commenting or re-posting and therefore it was difficult to determine whether the sample were healthcare professionals, patients, or members of the public. In addition, it was beyond the scope of this study to determine the demographics of the sample nor conduct any inferential statistics associated with demographic data. Additionally, the social media users chose to make their message or ‘retweet’ visible to the public. Therefore, these tweets may not be entirely representative of the emotions of the wider population. The study relied on views from those who have posted on social media which is a relatively small number of public which may limit the transferability of the findings. However, it is believed that the content of social media accounts that are public may not be significantly different from those that are not public (Fiesler et al., 2017).

The comments analysed in this study were posted during the COVID-19 pandemic. This may have resulted in the noted frequency of posts on this subject as a result of heightened media attention and coverage, leading to heightened sense of emotion. In the process of analysis, it is possible that there may have been some coding bias. It was, at times, difficult to determine the type of emotion that was expressed, particularly if emoticons were not used in the post. This, therefore relied on the subjective judgment of the research team. To minimise this subjectivity, two independent reviewers coded separately before comparing answers and then included a third independent reviewer when consensus was not reached.

Despite these limitations, as far as the authors are aware, this is the first study to explore public perceptions of the healthcare team through content analysis of social media posts. The findings from this study have been posted in a naturalistic online setting, reducing the possibility of social desirability due to the anonymity of the posts and perhaps a more accurate measurement of public perceptions than surveys (So et al., 2016). In addition, the results are generated in a timely manner and the process is more economical than traditional methods such as surveys (Chew & Eysenbach, 2010; Sinnenberg et al., 2016).

### **Conclusion**

Social media serves as an important mode of communication, far reaching, amongst the health and social care community and the wider public. It has the opportunity to increase general public understanding of the various roles in healthcare and raise awareness amongst the general public that the wider interprofessional team includes a range of professions and disciplines who are valued for their skills, knowledge and

expertise. Posts on social media can thus also serve to demonstrate the breadth of interprofessional care in society and thus show the value of less visible professions.

The post has brought considerable attention to the role of the interprofessional team with many feeling frustrated and excluded. For this reason, the response to this social media post is very important and not to be overlooked. Healthcare professionals need to work together to strengthen their presence as an interprofessional team, united to deliver safe effective quality care for the patient. The current COVID-19 pandemic and the media attention should be taken as an opportunity by the interprofessional community to work together to combat negative media stereotypes through educating and engaging the public through different platforms, public outreach campaigns, media presence, and research. It is important to consider how to continue to use social media in a positive way as a public teaching tool to raise awareness about the interprofessional team, different roles and possible variations of professions being involved in the delivery of healthcare. Additionally, the need to raise awareness of the changing scope of practice within existing roles. To help raise this awareness, further research is needed to increase our understanding of public perceptions of the interprofessional practice; what this means and who it involves.

## Acknowledgements

Open Access funding provided by the Qatar National Library.

The authors wish to thank Dr Shobhana Nagraj for her comments on the draft of the manuscript.

## Notes on contributors

**Dr Alla El-Awaisi** is the Assistant Dean of Student Affairs at Qatar University College of Pharmacy and the Chair of the Interprofessional Education (IPE) program at QU Health. She is a leader and active researcher in IPE and collaborative practice since 2014. She led many successful IPE initiatives nationally and internationally, including chairing the First Middle East Conference in Interprofessional Education held in 2015 and now the chairperson of the 10th biennial conference of All Together Better Health (ATBH X) to be held in Qatar in October 2021. Dr Alla received her Master of Pharmacy degree from Strathclyde University in Glasgow (UK), MSc in Prescribing Science from the Robert Gordon University (UK) and PhD in Interprofessional Education and Collaborative Practice from the Robert Gordon University (UK).

**Dr Veronica O'Carroll** is a Lecturer and Registered Nurse (Adult) in the School of Medicine, University of St Andrews. Since 2009, she has been involved in the design and implementation of interprofessional education (IPE) and interprofessional research in the academic and practice learning environment. She is a Board Member of the UK Centre for the Advancement of Interprofessional Education (CAIPE) and is the lead of CAIPE's research group.

**Ms Somaya Koraysh** recently graduated with BSc in Pharmacy from Qatar University College of Pharmacy (CPH) in spring 2020 and is currently pursuing Doctor of Pharmacy degree at CPH. She has completed the IPE program at CPH as an undergraduate student and participated in several IPE events. She completed another two research projects on patient safety and pharmacy education.

**Ms Sarra Koummich** recently graduated with BSc in Pharmacy from Qatar University College of Pharmacy (CPH) in spring 2020 and is currently pursuing Doctor of Pharmacy degree at CPH. She has completed

the IPE program at CPH as an undergraduate student and participated in several IPE events. She completed another two research projects on patient safety and pharmaceutical delivery.

**Professor Marion Huber** has been the deputy head of Interprofessional Learning and Practice at the Department of Health at the Zurich University of Applied Sciences in Switzerland since 2009. She also leads the research thematic unit "Interprofessionalism" at the same place. Marion is a member of the UK Centre for the Advancement of Interprofessional Education (CAIPE) research group, and a member of CAIPE's international liaison group. Her main research focus lies in competencies for interprofessional education and collaboration. Marion is globally networked in the field of research for interprofessionalism.

## ORCID

Alla El-Awaisi  <http://orcid.org/0000-0001-7930-3351>

Veronica O'Carroll  <http://orcid.org/0000-0001-5777-104X>

Somaya Koraysh  <http://orcid.org/0000-0002-2743-4496>

Sarra Koummich  <http://orcid.org/0000-0002-8712-5580>

## Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

## References

- Ahmed, Y. A., Ahmad, M. N., Ahmad, N., & Zakaria, N. H. (2019). Social media for knowledge-sharing: A systematic literature review. *Telematics and Informatics*, 37, 72–112. <https://doi.org/10.1016/j.tele.2018.01.015>
- Antonoff, M. B., & Stamp, N. (2017). The #NYerORCoverChallenge: What it means for women in cardiothoracic surgery. *The Journal of Thoracic and Cardiovascular Surgery*, 154(4), 1349–1351. <https://doi.org/10.1016/j.jtcvs.2017.06.015>
- Bauchner, H., & Easley, T. J. (2020). Health care heroes of the COVID-19 pandemic. *Jama*, 323(20), 2021. <https://doi.org/10.1001/jama.2020.6197>
- Blackhart, G. C., Nelson, B. C., Knowles, M. L., & Baumeister, R. F. (2009). Rejection elicits emotional reactions but neither causes immediate distress nor lowers self-esteem: A meta-analytic review of 192 studies on social exclusion. *Personality and Social Psychology Review*, 13(4), 269–309. <https://doi.org/10.1177/1088868309346065>
- Boyd, D., Golder, S., & Lotan, G. (2010, January 5–8). *Tweet, tweet, retweet: Conversational aspects of retweeting on Twitter*. Paper presented at the 2010 43rd Hawaii international conference on system sciences, Honolulu, HI, 2010, pp. 1–10, doi: 10.1109/HICSS.2010.412.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brighenti, A. M. (2010). *Visibility in social theory and social research*. London: Palgrave Macmillan. <https://doi.org/10.1057/9780230282056>
- Campbell, J. D., Chew, B., & Scratchley, L. S. (1991). Cognitive and emotional reactions to daily events: The effects of self-esteem and self-complexity. *Journal of Personality*, 59(3), 473–505. <https://doi.org/10.1111/j.1467-6494.1991.tb00257.x>
- Chaplan, B. r. (2020). Essential Jobs That Are in High Demand During Emergencies. Retrieved from <https://unemploymentdata.com/employment/careers/essential-jobs-that-are-in-high-demand-during-emergencies/?fbclid=IwAR3L-k5W5GrAH5CXizjTo9RPYM8XzGsab5jrPRPo5bwPP43xecD0ttoLwyo>
- Chew, C., & Eysenbach, G. (2010). Pandemics in the age of Twitter: Content analysis of tweets during the 2009 H1N1 outbreak. *Plos One*, 5(11), e14118. <https://doi.org/10.1371/journal.pone.0014118>
- Chou, W.-Y. S., Prestin, A., & Kunath, S. (2014). Obesity in social media: A mixed methods analysis. *Translational Behavioral Medicine*, 4(3), 314–323. <https://doi.org/10.1007/s13142-014-0256-1>



- Cook, T., Kursumovic, E., & Lennane, S. (2020). *Exclusive: Deaths of NHS staff from covid-19 analysed*. Health Service Journal - for Healthcare Leaders. <https://www.hsj.co.uk/exclusive-deaths-of-nhs-staff-from-covid-19-analysed/7027471.article>
- Cutler, S., Morecroft, C., Carey, P., & Kennedy, T. (2019). Are interprofessional healthcare teams meeting patient expectations? An exploration of the perceptions of patients and informal caregivers. *Journal of Interprofessional Care*, 33(1), 66–75. <https://doi.org/10.1080/13561820.2018.1514373>
- Delva, D., Jamieson, M., & Lemieux, M. (2008). Team effectiveness in academic primary health care teams. *Journal of Interprofessional Care*, 22(6), 598–611. <https://doi.org/10.1080/13561820802201819>
- Dol, J., Tutelman, P. R., Chambers, C. T., Barwick, M., Drake, E. K., Parker, J. A., Parker, R., Benchimol, E. I., George, R. B., & Witteman, H. O. (2019). Health researchers' use of social media: Scoping review. *Journal of Medical Internet Research*, 21(11), e13687. <https://doi.org/10.2196/13687>
- Ellemers, N., Spears, R., & Doosje, B. (2002). Self and social identity. *Annual Review of Psychology*, 53(1), 161–186. <https://doi.org/10.1146/annurev.psych.53.100901.135228>
- Fiesler, C., Dye, M., Feuston, J. L., Hiruncharoenvate, C., Hutto, C. J., Morrison, S., ... De Choudhury, M. (2017). *What (or who) is public? Privacy settings and social media content sharing*. In CSCW '17: Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (pp. 567–580). <https://doi.org/10.1145/2998181.2998223>
- FitzPatrick, M. (2020). *Thank you for your food donations – But it's not just NHS doctors and nurses who need your kindness*. Independent. <https://www.independent.co.uk/voices/food-donations-nhs-doctors-nurses-help-the-hungry-a9495561.html>
- Gaál, Z., Szabó, L., Obermayer-Kovács, N., & Csepregi, A. (2015). Exploring the role of social media in knowledge sharing. *Electronic Journal of Knowledge Management*, 13(3), 185–197. <http://search.ebscohost.com/login.aspx?direct=true&db=lxh&AN=110462630&site=eds-live&scope=site>
- Gill, J., & Baker, C. (2019). The power of mass media and feminism in the evolution of nursing's image: A critical review of the literature and implications for nursing practice. *Journal of Medical Humanities*. <https://doi.org/10.1007/s10912-019-09578-6>
- Gorham, B. W. (1999). Stereotypes in the media: So what? *Howard Journal of Communications*, 10(4), 229–247. <https://doi.org/10.1080/106461799246735>
- Hall, L. M., Angus, J., Peter, E., O'Brien-Pallas, L., Wynn, F., & Donner, G. (2003). Media portrayal of nurses' perspectives and concerns in the SARS crisis in Toronto. *Journal of Nursing Scholarship: An Official Publication of Sigma Theta Tau International Honor Society of Nursing*, 35(3), 211–216. <https://doi.org/10.1111/j.1547-5069.2003.00211.x>
- Hoyle, L. P., Kyle, R. G., & Mahoney, C. (2017). Nurses' views on the impact of mass media on the public perception of nursing and nurse-service user interactions. *Journal of Research in Nursing*, 22(8), 586–596. <https://doi.org/10.1177/1744987117736363>
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Institute of Medicine. (2015). *Measuring the impact of interprofessional education on collaborative practice and patient outcomes*. The National Academies Press.
- Johnson, S. (2018). *'The NHS is not just doctors and nurses': Five hidden roles*. The Guardian. <https://www.theguardian.com/society/2018/sep/12/nhs-not-just-doctors-nurses-five-hidden-roles>
- Keller, M. S., Park, H. J., Cunningham, M. E., Fouladian, J. E., Chen, M., & Spiegel, B. M. R. (2017). Public perceptions regarding use of virtual reality in health care: A social media content analysis using Facebook. *Journal of Medical Internet Research*, 19(12), e419–e419. <https://doi.org/10.2196/jmir.7467>
- Kim, C., & Yang, S.-U. (2017). Like, comment, and share on Facebook: How each behavior differs from the other. *Public Relations Review*, 43(2), 441–449. <https://doi.org/10.1016/j.pubrev.2017.02.006>
- Krippendorff, K. (2019). The changing landscape of content analysis: Reflections on social construction of reality and beyond. *Communication & Society*, 47, 1–27. Retrieved from [https://repository.upenn.edu/asc\\_papers/604](https://repository.upenn.edu/asc_papers/604)
- Lee, F. L. F. (2016). Impact of social media on opinion polarization in varying times. *Communication and the Public*, 1(1), 56–71. <https://doi.org/10.1177/2057047315617763>
- Liao, Q., Yuan, J., Dong, M., Yang, L., Fielding, R., & Lam, W. W. T. (2020). Public engagement and government responsiveness in the communications about COVID-19 during the early epidemic stage in China: Infodemiology study on social media data. *Journal of Medical Internet Research*, 22(5), e18796. <https://doi.org/10.2196/18796>
- Lindqvist, S., Anderson, E., Diack, L., & Reeves, S. (2017). (CAIPE statement on integrated care). The Centre for the Advancement of Interprofessional Education.
- Makaryus, A. N., & Friedman, E. A. (2005). Brief report: Does your patient know your name? An approach to enhancing patients' awareness of their caretaker's name. *The Journal for Healthcare Quality (JHQ)*, 27(4), 53–56. DOI: 10.1111/j.1945-1474.2005.tb00568.x
- McCambridge, J., Witton, J., & Elbourne, D. R. (2014). Systematic review of the Hawthorne effect: New concepts are needed to study research participation effects. *Journal of Clinical Epidemiology*, 67(3), 267–277. <https://doi.org/10.1016/j.jclinepi.2013.08.015>
- McKinley, C. J., Mastro, D., & Warber, K. M. (2014). Social identity theory as a framework for understanding the effects of exposure to positive media images of self and other on intergroup outcomes. *International Journal of Communication*, 8, 20. Retrieved from <https://ijoc.org/index.php/ijoc/article/view/2276>
- Mitchell, G. (2019, June 10). *Newspaper criticised for 'outdated' portrayal of nurses*. Nursing Times. EMAP PUBLISHING LIMITED. <https://www.nursingtimes.net/news/education/newspaper-criticised-for-outdated-portrayal-of-nurses-10-06-2019/>
- Neiger, B. L., Thackeray, R., Van Wagenen, S. A., Hanson, C. L., West, J. H., Barnes, M. D., & Fagen, M. C. (2012). Use of social media in health promotion: Purposes, key performance indicators, and evaluation metrics. *Health Promotion Practice*, 13(2), 159–164. <https://doi.org/10.1177/1524839911433467>
- Onoda, K., Okamoto, Y., Nakashima, K. I., Nittono, H., Yoshimura, S., Yamawaki, S., Yamaguchi, S., & Ura, M. (2010). Does low self-esteem enhance social pain? The relationship between trait self-esteem and anterior cingulate cortex activation induced by ostracism. *Social Cognitive and Affective Neuroscience*, 5(4), 385–391. <https://doi.org/10.1093/scan/nsq002>
- Parsons, S. R., Hughes, A. J., & Friedman, N. D. (2016). 'Please don't call me Mister': Patient preferences of how they are addressed and their knowledge of their treating medical team in an Australian hospital. *BMJ Open*, 6(1), e008473. <https://doi.org/10.1136/bmjopen-2015-008473>
- Rimé, B. (1995). The social sharing of emotion as a source for the social knowledge of emotion. In J. A. Russell, J.-M. Fernández-Dols, A. S. R. Manstead, & J. C. Wellenkamp (Eds.), *Everyday conceptions of emotion: An introduction to the psychology, anthropology and linguistics of emotion* (pp. 475–489). Springer Netherlands.
- Robinson, D. L. (2008). Brain function, emotional experience and personality. *Netherlands Journal of Psychology*, 64(4), 152–168. <https://doi.org/10.1007/BF03076418>
- Rosenberg, H., Syed, S., & Rezaie, S. (2020). The Twitter pandemic: The critical role of Twitter in the dissemination of medical information and misinformation during the COVID-19 pandemic. *CJEM*, 1–4. <https://doi.org/10.1017/cem.2020.361>
- Roy, M., Moreau, N., Rousseau, C., Mercier, A., Wilson, A., & Atlani-Duaault, L. (2020). Ebola and localized blame on social media: Analysis of Twitter and Facebook conversations during the 2014–2015 Ebola epidemic. *Culture, Medicine and Psychiatry*, 44(1), 56–79. <https://doi.org/10.1007/s11013-019-09635-8>
- Savolainen, R. (2015). The role of emotions in online information seeking and sharing: A case study of consumer awareness. *Journal of Documentation*, 71(6), 1203–1227. <https://doi.org/10.1108/JD-09-2014-0129>

- Scanfeld, D., Scanfeld, V., & Larson, E. L. (2010). Dissemination of health information through social networks: Twitter and antibiotics. *American Journal of Infection Control*, 38(3), 182–188. <https://doi.org/10.1016/j.ajic.2009.11.004>
- Shepherd, A., Sanders, C., Doyle, M., & Shaw, J. (2015). Using social media for support and feedback by mental health service users: Thematic analysis of a twitter conversation. *BMC Psychiatry*, 15(1), 29. <https://doi.org/10.1186/s12888-015-0408-y>
- Silva, M. M., & Freischlag, J. A. (2017). Challenge accepted: Social media as a stereotype change agent. *The Journal of Thoracic and Cardiovascular Surgery*, 154(4), 1354–1355. <https://doi.org/10.1016/j.jtcvs.2017.07.039>
- Sinnenberg, L., Buttenheim, A. M., Padrez, K., Mancheno, C., Ungar, L., & Merchant, R. M. (2016). Twitter as a tool for health research: A systematic review. *American Journal of Public Health*, 107(1), e1–e8. <https://doi.org/10.2105/AJPH.2016.303512>
- Skalski, P. D., Neuendorf, K. A., & Cajigas, J. A. (2017). Content analysis in the interactive media age. In Neuendorf, K. (Ed.), *The Content Analysis Guidebook*, 2, 201–242. Thousand Oaks, CA: SAGE Publications, Inc. <https://dx.doi.org/10.4135/9781071802878.n7>
- So, J., Prestin, A., Lee, L., Wang, Y., Yen, J., & Chou, W. Y. (2016). What do people like to “Share” about obesity? A content analysis of frequent retweets about obesity on Twitter. *Health Communication*, 31(2), 193–206. <https://doi.org/10.1080/10410236.2014.940675>
- The Society of Radiographers. (2018). *The NHS is NOT just doctors and nurses*. <https://www.sor.org/eazines/studenttalk/issue-125/new-versions-nhs-not-just-doctors-and-nurses>
- Turner, J. C. (1999). Some current issues in research on social identity and self-categorization theories. *Social identity: Context, commitment, content*, 3(1), 6–34.
- van Dongen, J. J. J., de Wit, M., Smeets, H. W. H., Stoffers, E., van Bokhoven, M. A., & Daniëls, R. (2017). “They are talking about me, but not with me”: A focus group study to explore the patient perspective on interprofessional team meetings in primary care. *Patient*, 10(4), 429–438. <https://doi.org/10.1007/s40271-017-0214-3>
- Waring, M. E., Baker, K., Peluso, A., May, C. N., & Pagoto, S. L. (2019). Content analysis of Twitter chatter about indoor tanning. *Translational Behavioral Medicine*, 9(1), 41–47. <https://doi.org/10.1093/tbm/iby011>
- Will, K. K., Johnson, M. L., & Lamb, G. (2019). Team-based care and patient satisfaction in the hospital setting: A systematic review. *Journal of Patient-Centered Research and Reviews*, 6(2), 158–171. <https://doi.org/10.17294/2330-0698.1695>
- World Health Organisation. (2010). *Framework for action on interprofessional education and collaborative practice*. Geneva.
- Yanicak, A., Mohorn, P. L., Monterroyo, P., Furgieue, G., Waddington, L., & Bookstaver, P. B. (2015). Public perception of pharmacists: Film and television portrayals from 1970 to 2013. *Journal of the American Pharmacists Association*, 55(6), 578–586. <https://doi.org/10.1331/JAPhA.2015.15028>