

Appendix 1. *Included studies*

Article	Target	Methodology	Sample size	Country/ countries	Time frame	Health topic	Specific health topic	Topic/Valence
Neiger (2012)	General public	Cross-sectional analysis of social media sites	Not applicable	USA	February - March 2011	Public health	Institutional communication	Conversation/Negative; Prevention / Positive
Thackeray (2012)	Health professionals	Theoretical approach	30 state public health departments social media sites	None	Not applicable	Public health	Institutional communication	Conversation/Negative
Villa (2012)	General public	Cross-sectional analysis of Twitter and Facebook accounts	Twitter and Facebook accounts of a clinic	Mexico	January 2010 - September 2011	Behavioral medicine	Cancer (tobacco)	Conversation/Positive
Anthenius (2013)	Health professionals / patients	Cross-sectional online survey	139 patients and 153 health care professionals	The Netherlands	July 2012	Public health	Use of twitter by healthcare professionals and/or patients.	Conversation/Negative
Lee (2013)	Health professionals	Online experimental study (panel)	63 undergraduate students	USA	One week (month and year not available)	Public health	Antibiotics	Engagement/Positive
Harris (2014)	Health professionals	Quantitative content analysis	4779 Twitter followers	USA	2013	Public health	Institutional communication	Engagement/Positive
Harris (2014b)	General public	Quantitative content analysis	1,110 tweets	None	June 2013	Public health	Obesity	Information/Negative
Mishori (2014)	Health professionals	Cross-sectional analysis of Twitter accounts	4 American professional groups Twitter accounts	USA	July 2012 - September 2012	Public health	Obesity	Engagement/Positive

Sylvia (2014)	General public	Quantitative content analysis and discourse analysis	2,2 million posts from social media (TW, FB, YT, Flickr, blogs, forums)	None	January 23 - March 23, 2012	Public health	Obesity	Conversation/Positive
Albalawi (2015)	General public	Cross-sectional analysis of Twitter accounts	99 Saudi Twitter accounts	Saudi Arabia	Not available	Public health	Institutional communication	Prevention/Positive
Bravo (2015)	General public	Qualitative content analysis	2,400 tweets	Canada	November 2013	Oncology	Cancer (testicles)	Conversation/Negative; Engagement/Positive
Househ (2015)	General public	Cross-sectional analysis of Twitter data and Google News Trend	25,925,152 tweets and Google trends	None	September 30 - October 30, 2014	Infectious disease	Ebola virus	Awareness/Positive
Lazard (2015)	General public	Quantitative content analysis	2,155 tweets	USA	October 2, 2014	Infectious disease	Ebola virus	Conversation/Positive
Mahoney (2015)	General public	Qualitative content analysis	100 news articles on Google News and 100 articles on Twitter	USA	August 1 - October 31, 2011	Oncology	VPH (vaccines)	Information/Negative
Nwosu (2015)	General public	Quantitative content analysis	683,500 tweets	None	August 1, 2011- July 31, 2013	Public health	Palliative medicine	Conversation/Positive
Park (2015)	Health professionals	Quantitative content analysis	1,583 tweets	USA	September 2012 - August 2013	Public health	Institutional communication	Engagement/Positive
So (2015)	General public	Quantitative content analysis	200,000 tweets	None	January 23, 2012 and March 23, 2012	Public health	Obesity	Engagement/Positive
Spence (2015)	General public	Laboratory study	258 students	USA	Not available	Public health	Crises and risks	Engagement/Positive

Sutton (2015)	Health professionals	Quantitative content analysis	5,100 tweets	USA	September 11-15, 2013	Public health	Crises and risks	Engagement/Positive
Vandertempel (2015)	General public	Quantitative content analysis	300 tweets	None	2014	Behavioral medicine	Cancer (tobacco)	Information/Negative
Alpert (2016)	Health professionals	In-depth interviews	17 physicians	USA	Not available	Public health	Use of twitter by healthcare professionals and/or patients.	Conversation/Positive
Bravo (2016)	General public	Quantitative content analysis	4,222 tweets	Canada	November 2013	Oncology	Cancer (testicles)	Conversation/Negative; Engagement/Positive
Chung (2016)	General public	Quantitative content analysis	1,790 tweets	USA	July 7-21, 2014	Behavioral medicine	Cancer (tobacco)	Conversation/Negative; Engagement/Positive
Costa (2016)	Health professionals	Cross-sectional analysis of social media sites	100 hospital web sites and Twitter and Facebook account of one hospital	Spain	February - March, 2016 and February, April and June, 2016	Public health	Institutional communication	Conversation/Positive
Glowacki (2016)	General public	Quantitative content analysis	555 original tweets and 1,174 retweets	USA	February 12, 2016	Infectious disease	Zika virus	Conversation/Positive
Kandadai (2016)	General public	Quantitative content analysis	Tweets from 1790 followers of @SafetyMD	USA	July - November 2012	Public health	Use of twitter by healthcare professionals and/or patients.	Engagement/Positive
Massey (2016)	General public	Quantitative content analysis	193,379 tweets	None	August 1, 2014 - July 31, 2015	Oncology	HPV (vaccines)	Conversation/Positive; Prevention / Positive
McClellan (2016)	General public	Cross-sectional analysis of Twitter	176 million tweets	None	2011-2014	Psychiatry	Mental health	Conversation/Positive

McLaughlin (2016)	General public	Quantitative content analysis	1,435 tweets	None	November 5 - December 27, 2012	Infectious disease	HIV	Engagement/Positive
McNeill (2016)	General public	Quantitative and qualitative content analysis and discourse analysis	12,711 tweets	UK	April 1, 2009 - May 1, 2010	Infectious disease	Swine flu	Conversation/Positive
Myrick (2016)	General public	Quantitative content analysis	18,571 tweets	None	September 15, 2011 - September 17, 2013	Oncology	Cancer	Conversation/Positive
Quintero (2016)	Health professionals	Laboratory study	257 college students	USA	Not available	Psychiatry	Mental health	Engagement/Positive
Radzikowski (2016)	General public	Quantitative content analysis	669,136 tweets	None	February 1 - March 9, 2015	Public health	Vaccinations	Conversation/Positive
Surian (2016)	General public	Quantitative content analysis	285,417 tweets	None	October 2013 - October 2014	Oncology	HPV (vaccines)	Information/Negative
Vos (2016)	General public	Quantitative and qualitative content analysis	25,598 tweets	None	April 10 - 18, 2013	Infectious disease	Avian flu	Conversation/Negative
Wa-Fu (2016)	General public	Quantitative content analysis	68,343 tweets	None	May 1, 2015 - April 2, 2016	Infectious disease	Zika virus	Engagement/Positive
Bravo (2017)	General public	Quantitative and qualitative content analysis	12,666 tweets	USA, UK & Canada	November 2013	Oncology	Cancer (prostate)	Conversation/Negative; Engagement/Positive
Chun-Hai-Fung (2017)	General public	Quantitative content analysis	157,951 tweets	None	January 1, 2014 - April 30, 2015	Infectious disease	Malaria, HIV, TB, NCDS, NTDS	Conversation/Positive
Da'ar (2017)	General public	Quantitative content analysis	6,873 users	Madagascar	November 19-27, 2014	Infectious disease	Bubonic plague	Conversation/Positive

D'Agostino (2017)	General public	Cross-sectional analysis of Twitter, Facebook and Google search trends and qualitative content analysis	6,422,170 tweets, 142 Facebook posts and Google search trends	None	March - November, 2014	Infectious disease	Ebola virus	Conversation/Positive
Glowacki (2017)	Health professionals	Quantitative content analysis	3,800 tweets	USA & UK	June 2015 - June 2016	Behavioral medicine	Cancer (tobacco)	Prevention / Positive
Lazard (2017)	General public	Quantitative content analysis	4,629 tweets	USA	May 1 - 17, 2016	Behavioral medicine	Cancer (tobacco)	Information/Negative; Conversation/Positive
Malpass (2017)	General public	Quantitative content analysis	1,794 tweets	None	2-week period in June 2015	Oncology	VPH	Conversation/Positive
Rabarison (2017)	General public	Social network analysis (SNA) and content analysis	744 tweets and 135 network members of #LifeFitNOLA	USA	March 5, 2015, from 12:00 PM to 1:15 PM Central Time	Public health	Effectiveness promoting healthy behaviors	Conversation/Negative; Prevention / Positive
Saqib (2017)	General public	Quantitative content analysis	23,500 tweets	None	October 10, 2015 - September 30, 2016	Infectious disease	Effectiveness promoting healthy behaviors	Conversation/Positive
Schwartz (2017)	General public	Quantitative content analysis	1,093 tweets	None	May 14, 2013 - May 14, 2015	Infectious disease	HIV	Awareness/Positive
Wong (2017)	Health professionals	Quantitative content analysis	287 users and 1,648 tweets	USA	September 3 - November 2, 2014	Infectious disease	Ebola virus	Conversation/Positive
Broniatowski (2018)	General public	Quantitative and qualitative content analysis	796,909 tweets	Russia	July 2014 - September 2017	Public health	Vaccinations	Information/Negative

Brunner (2018)	General public	Qualitative and quantitative content analysis	29,199 tweets	None	March 2016	Neurology	Brain injury	Conversation/Positive
Chen (2018)	Health professionals / patients	Quantitative content analysis	1,137,172 image tweets	None	November 11, 2014 - August 8, 2016	Public health	Vaccinations	Engagement/Positive
Chun-Hai-Fung (2018)	Health professionals	Quantitative content analysis	768 tweets and 809 followers	USA	November 21, 2016	Infectious disease	Molecular detection	Engagement/Positive
Chun-Hai-Fung (2018b)	General public	Cross-sectional analysis of Twitter accounts and tweets	30,521 tweets	South Korea	June 1 - 30, 2015	Infectious disease	Respiratory syndrome	Engagement/Positive
Costa (2018)	Health professionals	In-depth interviews and quantitative content analysis	2 interviews and analysis of web sites, Facebook and Twitter posts of two hospitals	Spain	February, April and June 2016 for HSJD and September, November and January 2017 for CUN	Public health	Institutional communication	Engagement/Positive
Glowacki (2018)	General public	Quantitative content analysis	73,235 tweets	USA	August 15, 2016 - October 15, 2016	Psychiatry	Opioids (medicines)	Conversation/Positive
Jackson (2018)	General public	Quantitative content analysis	21,981 tweets	None	April 21, 2011 - October 25, 2016 and March 19, 2013 - October 31, 2016	Public health	Institutional communication	Engagement/Positive

Lama (2018)	General public	Quantitative content analysis	456 image tweets	USA	November 11, 2014 - August 8, 2016	Infectious disease	HPV	Awareness/Negative
Lohmann (2018)	General public	Quantitative content analysis	20,201 tweets	None	2010 - 2017	Infectious disease	HIV	Engagement/Positive
Martínez (2018)	General public	Quantitative content analysis	193,051 tweets	USA	October 2015 - February 2016	Oncology	Cancer (tobacco)	Information/Negative
Pretorius (2018)	General public	Quantitative content analysis	41,358 tweets	None	September - November, 2017	Pediatrics	Sudden infant death syndrome	Information/Negative
Tang (2018)	Health professionals	Quantitative content analysis	1,154,156 tweets	USA	December 1, 2014 and April 30, 2015	Infectious disease	Measles	Conversation/Positive
Tantawi (2018)	General public	Quantitative content analysis	39 instructors and 225 students Twitter accounts	Saudi Arabia	June 2016 - November 2017	Dentistry	Use of twitter by healthcare professionals and/or patients.	Prevention / Positive
Teoh (2018)	General public	Quantitative content analysis	348 tweets	None	January 2016	Oncology	HPV (vaccines)	Awareness/Positive
Tougas (2018)	General public	Social network analysis (SNA) and content analysis	5,300 posts from Twitter, Facebook and Instagram	None	2-week period in December 2015 and May 2016	Pediatrics	Sudden infant death syndrome (children pain and sleep)	Conversation/Negative; Information/Negative

Vraga (2018)	General public	Quantitative content analysis	5,459,316 mentions of different hashtags in Twitter and 442,366 in Instagram	None	February 3 - 5, 2016, October - November 2015 and October 1, 2015 - September 30, 2016	Oncology	Cancer (prostate / breast)	Engagement/Positive
Yang (2018)	Health Professionals / patients	Quantitative content analysis	1,251 tweets	USA	July 23, 2009 - October 1, 2015	Cardiology	Cardiovascular diseases	Engagement/Positive
Yoo (2018)	General public	Cross-sectional online survey	498 females	Korea	Not available	Oncology	Use of twitter by healthcare professionals and/or patients.	Engagement/Positive
Adnan (2019)	General public	Quantitative content analysis	6,721 tweets	None	September 16, 2011 - November 21, 2016	Pneumology	Pneumonia	Engagement/Positive
Albalawi (2019)	Health professionals / patients	Quantitative content analysis	97,248 tweets	Saudi Arabia	May 18, 2018 and August 7, 2018	Public health	Use of twitter by healthcare professionals and/or patients.	Information/Positive
Andersen (2019)	Patients	Cross-sectional analysis of Twitter accounts and tweets	648,076 tweets from 592,802 Twitter accounts	None	November 28, 2015 - November 25, 2016	Infectious disease	Antibiotics and antimicrobial	Information/Positive
Gang (2019)	Health professionals / patients	Quantitative content analysis	300,000 tweets	None	April 3 - May 3, 2015	Public health	Use of twitter by healthcare professionals and/or patients.	Prevention / Positive

Glowacki (2019)	General public	Quantitative content analysis	12,796 tweets	USA & Canada	April 9, 2018 - June 29, 2018 and October 8, 2018 - January 9, 2019	Infectious disease	Escherichia coli	Information/Negative
Jung (2019)	General public	Laboratory study	660 Korean adults	South Korea	Not available	Public health	Vaccinations (influenza)	Information/Negative
Kelley (2019)	General public	Quantitative content analysis	2,309 tweets	USA	November 1, 2017 - March 27, 2018	Behavioral medicine	Cancer (tobacco)	Conversation/Positive
Lubinga (2019)	General public	Netnography (ethnography on the internet)	Not available (a radio conversation and conversation on Twitter)	South Africa	2018	Obstetrics and gynecology	Abortion	Conversation/Positive
Lutkenhaus (2019)	General public	Qualitative and quantitative content analysis	2,869 tweets	The Netherlands	July 28 - December 2, 2017	Public health	Vaccinations	Information/Negative
Lutkenhaus (2019b)	Patients	Network analysis, text mining and qualitative analysis	125,746 accounts and 3,822,000 connections	The Netherlands	August 28 - October 9, 2017	Public health	Vaccinations	Awareness/Positive
Myers (2019)	Health professionals	Quantitative content analysis	Facebook posting, tweets on Twitter, and videos on YouTube from 9 hospitals	USA	August 2017	Public health	Institutional communication	Awareness/Negative
O'Hanlon (2019)	Patients	Discourse analysis	592,046 tweets	None	December 2013 - December 2014	Oncology/Cardiology	Cardiovascular disease and cancer (breast)	Awareness/Negative
Sedrak (2019)	General public	Qualitative content analysis	2,097 tweets	None	August 1 - 22, 2017	Oncology	Cancer (kidney)	Information/Negative

Walker (2019)	Health professionals	Quantitative content analysis and thematic analysis	918 tweets	USA	March 31, 2017 - May 6, 2017	Psychiatry	Mental health (teen suicide)	Engagement/Positive
Wonyoon (2019)	General public	Quantitative content analysis	359,043 tweets	None	August 25 - September 5, 2016	Infectious disease	Zika virus	Conversation/Positive; Engagement/Positive
Yoo (2019)	General public	Cross-sectional online survey	1,152 South Korean adults	South Korea	January 2018	Behavioral medicine	Dust pollution / public health emergencies	Prevention / Positive; Prevention/Negative
Yuan (2019)	General public	Quantitative content analysis	669,136 tweets	None	February 1 - March 9, 2015	Public health	Vaccinations	Engagement/Positive