|  |  |
| --- | --- |
| Databases | Modified Search Queries |
| ACM Digital Computing | "disaster management" OR "emergency management" OR "mass emergency" AND "social media" OR "social network\*" AND healthcare OR "public health" OR medical\* OR "health care" |
| CINAHL | "disaster management" OR "emergency management" OR "mass emergency" AND "social media" OR "social network\*" AND healthcare OR "public health" OR medical\* OR "health care" |
| Emerald Insight | "disaster management" OR "emergency management" OR "mass emergency" AND ("social media" OR "social network\*") AND (healthcare OR "public health" OR medical\* OR "health care") |
| IEEE Xplore | ("Full Text & Metadata":"disaster management" OR "Full Text & Metadata":"emergency management" OR "Full Text & Metadata":"mass emergency") AND ("Full Text & Metadata":"social media" OR "Full Text & Metadata":"social network\*") AND ("Full Text & Metadata":healthcare OR "Full Text & Metadata":"public health" OR "Full Text & Metadata":medical\* OR "Full Text & Metadata":"health care") |
| PubMed | (("disaster management" OR "emergency management" OR "mass emergency" OR disaster\* AND ((fft[Filter]) AND (english[Filter]))) AND ("social media" OR "social network\*" AND ((fft[Filter]) AND (english[Filter])))) AND (healthcare OR "public health" OR medical\* OR "health care" AND ((fft[Filter]) AND (english[Filter]))) AND ((fft[Filter]) AND (english[Filter])) Filters: Full text, English |
| Scopus | (ALL ("disaster management” OR "emergency management" OR "mass emergency" ) AND ALL ( healthcare OR "public health" OR medical\* OR "health care" ) AND ALL ( "social media" OR social AND network\* ) ) AND PUBYEAR > 2009 AND ( LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "cp" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) |
| SpringerLink | 'healthcare | "public health" | "health care" & "disaster management" | "emergency management" & "social media"' |
| Google Scholar | ("disaster management" OR "emergency management" OR "mass emergency") AND ("social media" OR "social network\*") AND (healthcare OR "public health" OR "medical\* OR "health care") |

**Appendix 1.** Modified search queries and the number of the results

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| --- | --- | --- | --- |
| **Author(s)** | **Topic** | **Platform** | **Disaster Event** |
| C. Wukich and I. Mergel [71](#_ENREF_71) | Used SN analysis software package UCINET | Twitter | - |
| H. A. Abu-Alsaad and R. R. K. Al-Taie [52](#_ENREF_52) | NLP | Twitter | - |
| B. Sahoh and A. Choksuriwong [104](#_ENREF_104) | NER | Twitter | - |
| D. Bennett [107](#_ENREF_107) | Qualitative content analysis | Twitter | - |
| R. Aswani, A. K. Kar and P. V. Ilavarasan [108](#_ENREF_108) | Quantitative content analysis | Twitter | - |
| L. Fernandez-Luque and M. Imran [112](#_ENREF_112) | Literature review | - | - |
| S. J. Teague, A. B. R. Shatte, E. Weller, M. Fuller-Tyszkiewicz and D. M. Hutchinson [115](#_ENREF_115) | Scoping review | - | - |
| M. Arslan, A. M. Roxin, C. Cruz and D. Ginhac [118](#_ENREF_118) | Systematic review | - | - |
| C. Wukich [123](#_ENREF_123) | Qualitative analysis | - | - |
| M. Yang, Y. Li and M. Kiang [125](#_ENREF_125) | Qualitative analysis | - | - |
| H. N. Alshareef and D. Grigoras [127](#_ENREF_127) | Proposing a system | - | - |
| H. N. Alshareef and D. Grigoras [129](#_ENREF_129) | Proposing a system | Twitter | - |
| F. Niknam, M. Samadbeik, F. Fatehi, M. Shirdel, M. Rezazadeh and P. Bastani [46](#_ENREF_46) | Content analysis | Instagram | COVID-19 |
| S. Yum [73](#_ENREF_73) | Content analysis | Twitter | COVID-19 |
| Y. Yang and Y. Su [74](#_ENREF_74) | Qualitative analysis | - | COVID-19 |
| P. C. I. Pang, Q. Cai, W. Jiang and K. S. Chan [75](#_ENREF_75) | Qualitative analysis | Facebook | COVID-19 |
| M. K. Leibowitz, M. R. Scudder, M. McCabe, J. L. Chan, M. R. Klein, N. Seth Trueger, et al. [76](#_ENREF_76) | Qualitative and quantitative analysis | Twitter | COVID-19 |
| L. Liu, Y. Tu and X. Zhou [78](#_ENREF_78) | LSTM sentiment analysis, LDA topic modelling | Weibo | COVID-19 |
| Z. Zhong [50](#_ENREF_50) | Text analysis using a combination of LDA, sentiment analysis, correlation analysis | Baidu | COVID-19 |
| S. Yu, D. Eisenman and Z. Han [83](#_ENREF_83) | Sentiment analysis using Python and Snow NLP Python libraries | Weibo | COVID-19 |
| M. Taeb, H. Chi and J. Yan [84](#_ENREF_84) | NLTK, TF-IDF, LDA, BERT | Twitter | COVID-19 |
| V. Negri, D. Scuratti, S. Agresti, D. Rooein, G. Scalia, A. Ravi Shankar, et al. [85](#_ENREF_85) | VisualCit, a pipeline for image-based social sensing | Twitter | COVID-19 |
| L. Li, A. Aldosery, F. Vitiugin, N. Nathan, D. Novillo-Ortiz, C. Castillo, et al. [86](#_ENREF_86) | K-Means, TF-IDF, NLTK | Twitter | COVID-19 |
| X. Han, J. Wang, M. Zhang and X. Wang [87](#_ENREF_87) | Time series, LDA | Weibo | COVID-19 |
| T. Awoyemi, K. E. Ogunniyi, A. V. Adejumo, U. Ebili, A. Olusanya, E. H. Olojakpoke, et al. [88](#_ENREF_88) | TF-IDF, LDA, sentiment and emotion analysis | Twitter | COVID-19 |
| S. Andhale, P. Mane, M. Vaingankar, D. Karia and K. T. Talele [90](#_ENREF_90) | CNN-RoBERTa | Twitter | COVID-19 |
| A. Adikari, R. Nawaratne, D. de Silva, S. Ranasinghe, O. Alahakoon and D. Alahakoon [91](#_ENREF_91) | NLP, word embeddings, markov models | Twitter | COVID-19 |
| H. Adamu, M. J. B. M. Jiran, K. H. Gan and N. H. Samsudin [92](#_ENREF_92) | NLP, SVM, KNN | Twitter | COVID-19 |
| Y. E. Park [51](#_ENREF_51) | Semantic network analysis | Twitter - YouTube | COVID-19 |
| A. A. Mir and R. Sevukan [94](#_ENREF_94) | Sentiment analysis using VADER | Twitter | COVID-19 |
| K. Li, C. Zhou, X. R. Luo, J. Benitez and Q. Liao [95](#_ENREF_95) | Text mining and NLP | Weibo | COVID-19 |
| M. U. Hoque, K. Lee, J. L. Beyer, S. R. Curran, K. S. Gonser, N. S. N. Lam, et al. [96](#_ENREF_96) | Sentiment analysis using VADER | Twitter | COVID-19 |
| H. Gao, D. Guo, J. Wu and L. Li [44](#_ENREF_44) | DLUT-Emotion ontology for sentiment analysis | Weibo | COVID-19 |
| N. Gamal, S. Ghoniemy, H. M. Faheem and N. A. Seada [99](#_ENREF_99) | Linear classifier, MLP, RNN, and CNN | Twitter | COVID-19 |
| S. De Rosis, M. Lopreite, M. Puliga and M. Vainieri [101](#_ENREF_101) | LSTM | Twitter | COVID-19 |
| W. Chipidza, E. Akbaripourdibazar, T. Gwanzura and N. M. Gatto [102](#_ENREF_102) | LDA | Twitter | COVID-19 |
| M. Machmud, B. Irawan, K. Karinda, J. Susilo and Salahudin [103](#_ENREF_103) | Qualitative analysis | Twitter | COVID-19 |
| M. Chong and H. W. Park [54](#_ENREF_54) | Content analysis | Twitter | COVID-19 |
| Y. Li, Y. Chandra and N. Kapucu [106](#_ENREF_106) | LDA | Weibo | COVID-19 |
| E. Mori, B. Barabaschi, F. Cantoni and R. Virtuani [47](#_ENREF_47) | Qualitative content analysis | Facebook | COVID-19 |
| Y. Wang, H. Hao and L. S. Platt (2021) [62](#_ENREF_62) | Dynamic network analysis | Twitter | COVID-19 |
| L. Liu, Y. Tu and X. Zhou [110](#_ENREF_110) | AHPSort II, SMAA-2 | - | COVID-19 |
| Y. Xing, Y. Li and F. K. Wang [111](#_ENREF_111) | TF-IDF | Twitter, Weibo | COVID-19 |
| N. A. Hasanah, N. Suciati and D. Purwitasari [113](#_ENREF_113) | Word2Vec, fastText, CNN, RNN and LSTM | Twitter | COVID-19 |
| D. Yao, J. Li, Y. Chen, Q. Gao and W. Yan [114](#_ENREF_114) | Social network analysis | - | COVID-19 |
| Y. Zhuang, T. Zhao and X. Shao [53](#_ENREF_53) | Qualitative analysis | WeChat | COVID-19 |
| F. Binsar and T. Mauritsius [116](#_ENREF_116) | SVM, Random Forest and Naïve Bayes | Twitter | COVID-19 |
| T. D. Durowaye, A. R. Rice, A. T. M. Konkle and K. P. Phillips [56](#_ENREF_56) | Thematic content analysis | Facebook | COVID-19 |
| D. M. Abdulah and M. S. Saeed [117](#_ENREF_117) | Statistical Analysis | Facebook | COVID-19 |
| B. Dutta, M. H. Peng, C. C. Chen and S. L. Sun [119](#_ENREF_119) | Delphi Method, NLP | - | COVID-19 |
| F. M. Alhassan and S. A. AlDossary [120](#_ENREF_120) | Content analysis | Twitter | COVID-19 |
| S. Luna, A. Guerrero, K. Gonzalez and A. Akundi [55](#_ENREF_55) | NLP, Sentiment Analysis | Twitter | COVID-19 |
| S. Fissi, E. Gori and A. Romolini [121](#_ENREF_121) | CERC | Facebook | COVID-19 |
| I. Amin, Z. Pramestri, G. Hodge and J. G. Lee [122](#_ENREF_122) | - | Twitter | COVID-19 |
| T. Muswede and S. L. Sithole [48](#_ENREF_48) | Qualitative analysis | WhatsApp | COVID-19 |
| A. Tommasel, A. Diaz-Pace, D. Godoy and J. M. Rodriguez [124](#_ENREF_124) | Psycho-linguistic analysis | Twitter | COVID-19 |
| R. Mittal, W. Ahmed, A. Mittal and I. Aggarwal [42](#_ENREF_42) | Sentiment analysis (data extraction), Qualitative analysis | Twitter | COVID-19 |
| Q. Chen, C. Min, W. Zhang, G. Wang, X. Ma and R. Evans [28](#_ENREF_28) | Systematic review | Weibo | COVID-19 |
| H. Abbas, M. M. Tahoun, A. T. Aboushady, A. Khalifa, A. Corpuz and P. Nabeth [126](#_ENREF_126) | - | - | COVID-19 |
| P. K. Dalela, S. Sharma, N. K. Kushwaha, S. Basu, S. Majumdar, A. Yadav, et al. [105](#_ENREF_105) | Linear SVC, logistic regression, multinomial Naive Bayes, Random Forest, XGBoost, KNN | Twitter | Cyclone |
| S. Madichetty and M. S [81](#_ENREF_81) | RoBERTa model and feature-based method | Twitter | Different Disaster Scenario |
| J. Krishnan, H. Purohit and H. Rangwala [82](#_ENREF_82) | Multi-task domain adversarial attention network (MT-DAAN) | Twitter | Different Disaster Scenario |
| J. Radianti, S. R. Hiltz and L. Labaka [60](#_ENREF_60) | Content analysis | Twitter | Earthquake |
| T. Onorati and P. Díaz [93](#_ENREF_93) | Semantic analysis | Twitter | Earthquake |
| C. Havas and B. Resch [97](#_ENREF_97) | LDA | Twitter | Earthquake |
| K. Rudra, P. Goyal, N. Ganguly, P. Mitra and M. Imran [65](#_ENREF_65) | Integer linear programming technique | Twitter | Earthquake, Flood, Typhoon |
| A. Asif, S. Khatoon, M. M. Hasan, M. A. Alshamari, S. Abdou, K. M. Elsayed, et al. [70](#_ENREF_70) | VGG-16, AHP, CNN | - | Earthquake, Hurricane, and Typhoon |
| A. J. Lazard, E. Scheinfeld, J. M. Bernhardt, G. B. Wilcox and M. Suran [58](#_ENREF_58) | SAS text miner | Twitter | Ebola |
| K. C. Finch, K. R. Snook, C. H. Duke, K.-W. Fu, Z. T. H. Tse, A. Adhikari, et al. [67](#_ENREF_67) | Scoping review | - | Environmental Disaster |
| U. A. Bukar, F. Sidi, M. A. Jabar, R. N. H. B. Nor, S. Abdullah and I. Ishak [64](#_ENREF_64) | ANN, PLS-predict, PLS-SEM | - | Flood |
| B. Wang and J. Zhuang [61](#_ENREF_61) | Content analysis | Twitter | Hurricane |
| S. I. Garske, S. Elayan, M. Sykora, T. Edry, L. B. Grabenhenrich, S. Galea, et al. [77](#_ENREF_77) | Local Indicator of Spatial Association (LISA) | Twitter | Hurricane |
| S. Shams, S. Goswami and K. Lee [80](#_ENREF_80) | Deep learning based framework using LLR,Single LSTM, Stacked LSTM, ConvNet | Twitter | Hurricane |
| N. Assery, X. Yuan, X. Qu, S. Almalki and K. Roy [89](#_ENREF_89) | TF-IDF, random forest, decision tree | Twitter | Hurricane |
| C. Fan, F. Wu and A. Mostafavi [100](#_ENREF_100) | A pipeline which integrates Named Entity Recognition (NER), Location Fusion, BERT, Graph-based clustering | Twitter | Hurricane |
| S. Chen, J. Mao and G. Li [63](#_ENREF_63) | Location classification, Time slicing, sentiment classification | Twitter | Hurricane |
| B. Wang and J. Zhuang [61](#_ENREF_61) | Content analysis | Twitter | Hurricane |
| K. A. Lachlan, P. R. Spence and X. Lin [109](#_ENREF_109) | Quantitative content analysis | Twitter | Hurricane |
| S. Saleem and M. Mehrotra [68](#_ENREF_68) | Literature review | Twitter | Hurricane, Earthquake, Flood, Cyclone |
| A. H. Alamoodi, B. B. Zaidan, A. A. Zaidan, O. S. Albahri, K. I. Mohammed, R. Q. Malik, et al. [72](#_ENREF_72) | Systematic review | - | Infectious Diseases |
| S. Ghosh, P. K. Srijith and M. S. Desarkar [98](#_ENREF_98) | Naive bayes classifier, SVM, decision trees, random Forest, Adaboost, gradient boosting | Twitter | Natural Disasters |
| H. Seddighi, I. Salmani and S. Seddighi [43](#_ENREF_43) | Literature review | Twitter | Natural Disasters, Pandemic |
| M. Basu, S. Ghosh, A. Jana, S. Bandyopadhyay and R. Singh [49](#_ENREF_49) | - | WhatsApp | Nepal Earthquake |
| L. E. Charles-Smith, T. L. Reynolds, M. A. Cameron, M. Conway, E. H. Lau, J. M. Olsen, et al. [128](#_ENREF_128) | Systematic review | - | Outbreak |
| M. Abbassinia, O. Kalatpour, M. Motamedzade, A. Soltanian and I. Mohammadfam [69](#_ENREF_69) | Qualitative analysis | - | Petrochemical |
| H. Woo, Y. Cho, E. Shim, K. Lee and G. Song [79](#_ENREF_79) | NLP | Twitter | Sewol Ferry Disaster |
| S. Shan, F. Zhao, Y. Wei and M. Liu [45](#_ENREF_45) | Qualitative content analysis | Weibo | Typhoon |
| J. Xiong, Y. Hswen and J. A. Naslund [66](#_ENREF_66) | LDA, sentiment analysis | Twitter | Water crisis |
| L. Hagen, R. Scharf, S. Neely and T. Keller [57](#_ENREF_57) | Qualitative content analysis | Twitter | Zika |

**Appendix 2.** Selected studies for the review