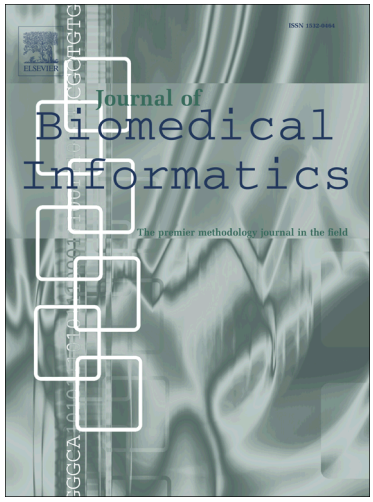

Using online social networks to track a pandemic: A systematic review

Mohammed Ali Al-garadi, Muhammad Sadiq Khan, Kasturi Dewi Varathan, Ghulam Mujtaba, Abdelkodose M. Al-Kabsi

PII: S1532-0464(16)30035-1
DOI: http://dx.doi.org/10.1016/j.jbi.2016.05.005
Reference: YJBIN 2570

To appear in: *Journal of Biomedical Informatics*

Received Date: 13 January 2016
Revised Date: 21 April 2016
Accepted Date: 14 May 2016

Please cite this article as: Al-garadi, M.A., Khan, M.S., Varathan, K.D., Mujtaba, G., Al-Kabsi, A.M., Using online social networks to track a pandemic: A systematic review, *Journal of Biomedical Informatics* (2016), doi: http://dx.doi.org/10.1016/j.jbi.2016.05.005

Using online social networks to track a pandemic: A systematic review

Mohammed Ali Al-garadi[1*], Muhammad Sadiq Khan[1], Kasturi Dewi Varathan[1] , Ghulam Mujtaba[1], Abdelkodose M Al-Kabsi[2]

[1]Department of Information System, Faculty of Computer Science & Information Technology University of Malaya, Kuala Lumpur, Malaysia
[2]Medical Microbiology Cyberjaya University College of Medical Sciences (CUCMS), Cyberjaya, Selangor, Malaysia.
[*]Corresponding email: mohammedali@siswa.um.edu.my

Abstract

Background: The popularity and proliferation of online social networks (OSNs) have created massive social interaction among users that generate an extensive amount of data. An OSN offers a unique opportunity for studying and understanding social interaction and communication among far larger populations now more than ever before. Recently, OSNs have received considerable attention as a possible tool to track a pandemic because they can provide an almost real-time surveillance system at a less costly rate than traditional surveillance systems.

Methods: A systematic literature search for studies with the primary aim of using OSN to detect and track a pandemic was conducted. We conducted an electronic literature search for eligible English articles published between 2004 and 2015 using PUBMED, IEEExplore, ACM Digital Library, Google Scholar, and Web of Science. First, the articles were screened on the basis of titles and abstracts. Second, the full texts were reviewed. All included studies were subjected to quality assessment.

Result: OSNs have rich information that can be utilized to develop an almost real-time pandemic surveillance system. The outcomes of OSN surveillance systems have demonstrated high correlations with the findings of official surveillance systems. However, the limitation in using OSN to track pandemic is in collecting representative data with sufficient population coverage. This challenge is related to the characteristics of OSN data. The data are dynamic, large-sized, and unstructured, thus requiring advanced algorithms and computational linguistics.