



@susanhfenton

Insights from leaders on the future of digital health: An analysis of Twitter posts of IMIA Fellows

Susan Fenton, PhD, RHIA, ACHIP, FAHIMA

Associate Professor, Associate Dean for Academic and Curricular Affairs

UTHealth Houston





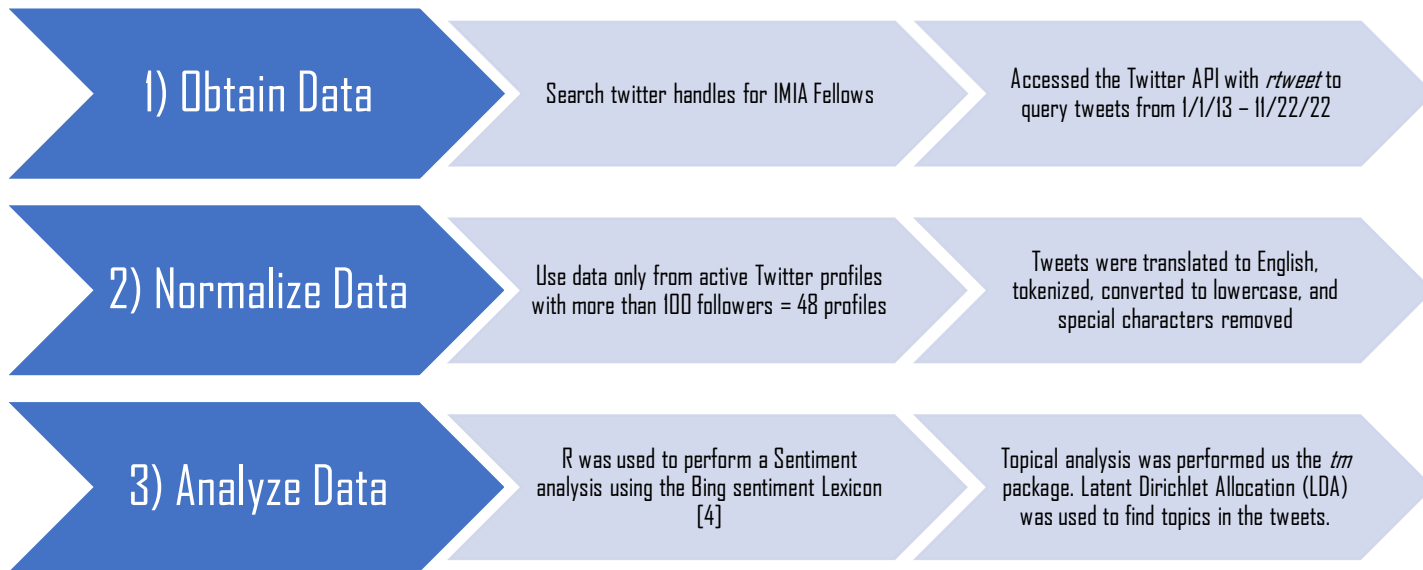
Introduction

- Recent Trends in Digital Health
 1. Rapid adoption of technology due to the rapid digitization of services during COVID-19 resulted in shifts in digital strategies [1-2]
 2. The transformation in digital health has reduced inequities whilst increasing the digital divide [3]
- The healthcare sector needs to be alert and agile, and be ready to evaluate and adopt meaningful and safe technologies that support citizen-centric care and promote wellness.

This paper reports findings from an analysis of Twitter posts of digital health thought leaders and influencers to determine the emerging trends in digital health.



Methods



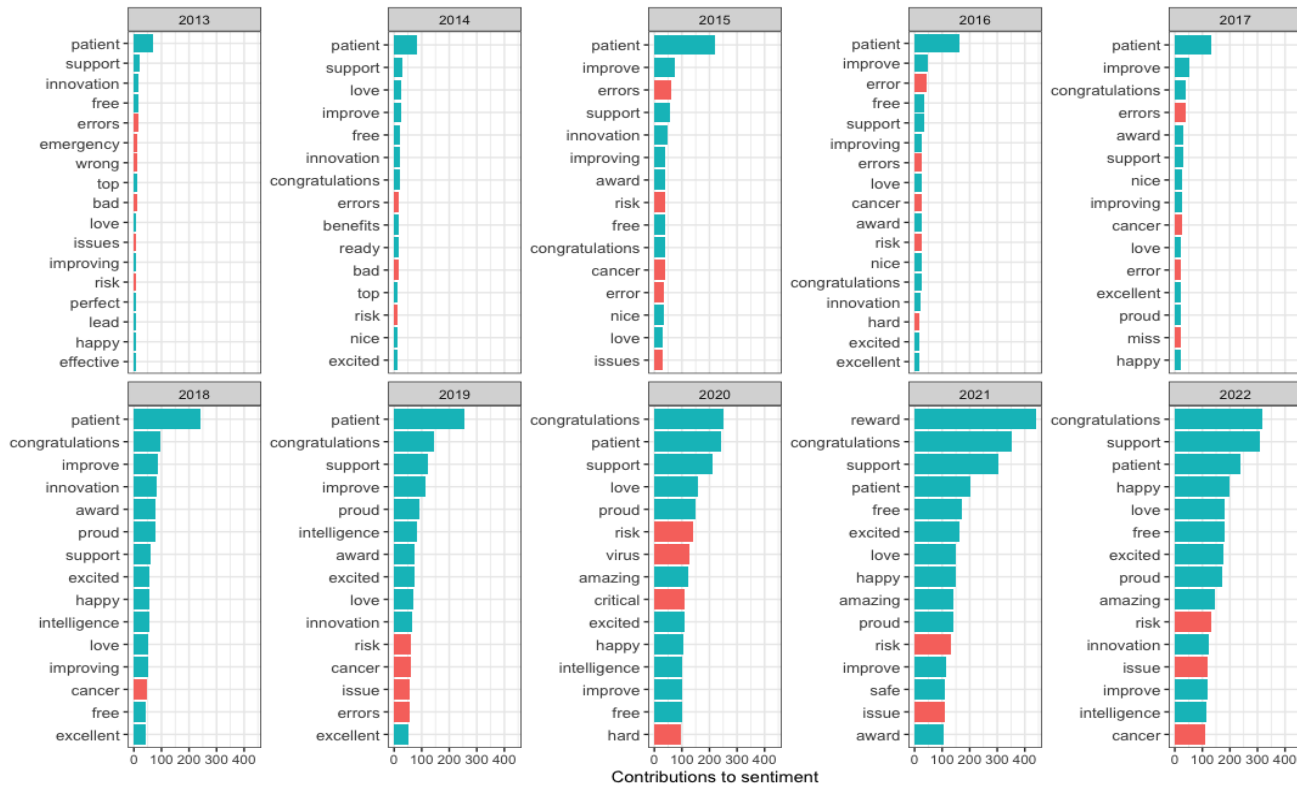
- 82,001 tweets from 48 accounts.
- 36,313 retweets
- 46,688 original tweets
 - Shared 131,324 times
 - Favored 484,368 times



Results

- Sentiment of top 20 terms from 2013 - 2022.
- Positive Terms
 - Patient, congratulations, reward
- Negative Terms
 - Risk, virus, hard, cancer, error
- In 2020, COVID-19 related terms resulted in more frequent negative sentiment

Sentiment of Tweets by IMIA Fellows by Year



Results

- 3-8 topics emerged per year
- 2013-14, Health and HealthIT emerged as common topics
- 2015-2017, big data, AMIA, safety, MedInfo and EHR emerged.
- 2018-2019, thanks, congratulation, patient safety emerged
- 2020, COVID emerged as a new topic and was covered in context to people, information, and research.
- 2021, COVID was now related to vaccines, and topics emerged related to God, research, people, clinical care, and time.
- 2022, the most common topic was a congratulatory related to AMIA, COVID related to time, research, God, and openEHR.

Year	Frequency	Proportion of Tweets For Each Topic	
2022	Docs: 18,553 Terms: 6,291	0.15: informatics great health 0.15: covid people just now time 0.14: health new acijournal care data 0.14: health research will university	0.14: god israeli palestine people 0.14: data can need openehr will 0.13: atari one team first day
2021	Docs: 18,600 Terms: 6,320	0.17: just like one year last 0.16: data health new care clinical 0.15: people can will many world 0.14: amia congratulations informatics	0.14: health research science digital 0.14: covid vaccine people pandemic 0.09: may god reward kuwait allah
2020	Docs: 13,992 Terms: 5,427	0.23: just one good like great 0.21: informatics health amia great 0.20: covid people coronavirus care	0.18: health data covid information 0.17: covid new care health paper
2019	Docs: 7,727 Terms: 3,268	0.28: can just one will get 0.26: care new health patient safety	0.24: informatics great medinfo 0.22: health data information digital
2018	Docs: 6,137 Terms: 2,653	0.18: will can just like make 0.17: paper new safety patient ehr 0.17: health care data patient hcsn	0.17: great hic thanks digitalhealth 0.16: informatics health amia data 0.15: health efmi mie informatics
2017	Docs: 3,413 Terms: 1,404	0.24: safety patient care hcsn hitsm 0.20: hercfarr data chcnorth health 0.19: infomedhiba medinfo conarpe	0.19: amia informatics great 0.18: health informatics digital data
2016	Docs: 3,511 Terms: 1,422	0.15: just will thanks time acr 0.15: informatics amia amiainformatics 0.14: health hcsn care hitsm healthit 0.14: patient safety ehr new	0.14: via can data privacy one 0.14: hercfarr data health https 0.13: data health healthcare efmi
2015	Docs: 5,404 Terms: 2,021	0.14: ehr safety patient health 0.13: can people will need via 0.13: informatics amia health 0.13: great openmrs thanks day see	0.12: hcsn hitsm health care hcldr 0.12: data via big privacy medical 0.12: health care healthit healthcare 0.12: mahealth endocrinewitch health
2014	Docs: 2,748 Terms: 1,043	0.36: healthxph acr good endocrinewitch 0.32: informatics amia data	0.32: health hcsmanz care hitsm
2013	Docs: 1,675 Terms: 603	0.37: endocrinewitch openmrs will one 0.33: via zite health healthit care	0.30: hcsmanz health care informatics



Discussion & Conclusions

- Twitter Posts from IMIA Fellows demonstrate important historical trends and sentiments related to important health IT topics
- From 2013-19, sentiment was mostly positive related to patient care while the less common negative sentiment was related to errors, risks, and cancer.
- Starting in 2020, COVID-19 caused a major disruption with frequent negative sentiment related to people, information, and research. In 2021, there was more positive sentiment to COVID-19 related to vaccines, research, and clinical care.
- Longitudinal Tweets from IMIA Fellows offer insight into the major topics and events drawing attention in Health IT-related professions, and healthcare generally.



References

1. Pérez Sust P, et al. Turning the Crisis Into an Opportunity: Digital Health Strategies Deployed During the COVID-19 Outbreak. *JMIR Public Health Surveill*, 2020;6(2):e19106.
2. Kadakia, K., Patel, B. & Shah, A. Advancing digital health: FDA innovation during COVID-19. *npj Digit. Med.* 2020; 3, 161.
3. Crawford A, Serhal E. Digital Health Equity and COVID-19: The Innovation Curve Cannot Reinforce the Social Gradient of Health. *J Med Internet Res*, 2020;22(6):e19361.
4. Hu, M & Liu, B. Mining and summarizing customer reviews, Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD-2004), 2004.



Collaborators

- David T Marc - The College of St. Scholastica, Duluth, Minnesota, USA
- Karima Lalani - The University of Texas Health Science Center at Houston, Houston, Texas, USA
- Susan H Fenton - The University of Texas Health Science Center at Houston, Houston, Texas, USA
- Kerryn Butler-Henderson - RMIT University, Melbourne, Victoria, AUSTRALIA



Questions?

Susan Fenton PhD, RHIA, ACHIP, FAHIMA

Susan.H.Fenton@uth.tmc.edu

Twitter @susanhfenton