# Use of social media analytics for raising awareness of cardiovascular diseases risk factors in the female population of Australia

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## Background

- Cardiovascular diseases (CVDs) are the number one cause of death in Australia
- Over 1 million Australians are at risk of CVDs
- Many cases remain unreported individuals who are unaware of their health conditions
- There is a lack of sufficient information to understand the risk factors of CVDs
- Most CVD risk factors are preventable by improving awareness
- Awareness of CVD risk factors is crucial to encourage individuals to make changes toward a healthy lifestyle

## Objectives

- Detecting effective social media strategies in health promotion campaigns
- Improving dissemination of health information in social media campaigns to raise awareness of CVD risk factors in Australian women.
- Utilising R programming for social media analytics as a fast and cost-effective method

## Method

*Quantitative:*

- Data collection from Twitter and Facebook APIs, using R programming
- Online surveys

*Qualitative:*

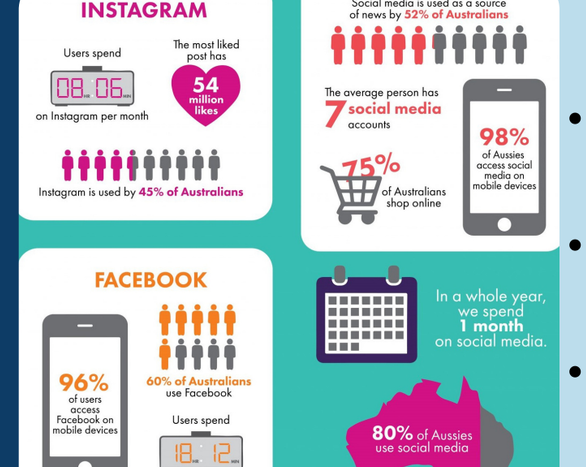
- Analysis of the trend of users' behaviour on social media, using R programming
- Conducting interviews

## Conclusion

- The potential role of social media in raising awareness of CVD risk factors in heart health campaigns for women should not be neglected
- The gap between research and health industry should be covered through utilising state-of-the-art machine learning techniques for social media analytics
- Health policy makers need to understand how to benefit from technology to improve women's engagement with social media channels to enhance the effectiveness of CVD social media campaigns

## *Research Proposal*

## Why CVDs for Australian women?




- Cardiovascular disease (CVD) is a leading cause of death among Australian women
- In 2017–18, an estimated 510,000 (4.8%) Australian women aged 18 and over had 1 or more heart and vascular diseases.
- About 206,000 women had coronary heart disease, and 37,000 had heart failure.
- 22 women die from CVDs every day, which is three times more than the deaths from breast cancer
- 56% of women are unaware of the significance of their CVD risk factors

## Why social media for awareness?




- In January 2021, Australia had 20.5 million social media active users (80% of the population compared to 58% in 2015)
- Growth of use of social media apps could enhance the engagement of users to disseminate messages to improve health outcomes
- Researchers benefit from valuable social media data to seek trends and patterns of users via cohort analysis and predictive model building
- Social media has the potential to raise awareness in health promotion campaigns

## Why R for social media analytics?


- A free open source cross-platform
- Able to import/export any form of data
- Able to pair with RStudio and use up-to-date R packages
- Able to provide statistical predictive modeling including classic statistical tests, classification and clustering
- Able to analyse complex and unstructured big datasets extracted from social media platforms
- Able to integrate with social media APIs for real-time data
- The R packages used to collect tweets from Twitter API are *rtweet* and *twitteR*
- The *R* packages available for natural language processing or non standard or large blocks of text are *tm, tidytext, dyplyr and ggplot2*
- The R package to access to Facebook API is *Rfacebook*

## References

*Appel, G., Grewal, L., Hadi, R., Stephen, A.T., 2020. The future of social media in marketing. Journal of the Academy of Marketing Science 48, 79–95.. doi:10.1007/s11747-019-00695-1*
*Mukattash, T.L., Shara, M., Jarab, A.S., Al-Azzam, S.I., Almaaytah, A. and Al Hamarneh, Y.N., 2012. Public knowledge and awareness of cardiovascular disease and its risk factors: a cross-sectional study of 1000 Jordanians. International Journal of Pharmacy Practice, 20(6), pp.367-376.*
*Ray, K.K., Laufs, U., Lobo, M.D., Cosentino, F. and Landmesser, U., 2020. The year in cardiology: cardiovascular prevention, the year in cardiology 2019. SA Heart, 17(1), pp.20-28.*
*Brusse, C., Gardner, K., Mcaullay, D., Dowden, M., 2014. Social Media and Mobile Apps for Health Promotion in Australian Indigenous Populations: Scoping Review. Journal of Medical Internet Research 16, e280.. doi:10.2196/jmir.3614*
*El-Serag, R., Thurston, R.C., 2020. Matters of the Heart and Mind: Interpersonal Violence and Cardiovascular Disease in Women. Journal of the American Heart Association 9.. doi:10.1161/jaha.120.015479*
*Grajales Iii, F.J., Sheps, S., Ho, K., Novak-Lauscher, H., Eysenbach, G., 2014. Social Media: A Review and Tutorial of Applications in Medicine and Health Care. Journal of Medical Internet Research 16, e13.. doi:10.2196/jmir.2912*
*Luke, DA 2015, A user's guide to network analysis in R, Use R!, Springer, viewed 10 March 2021, <https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=cat06414a&AN=vic.b3493513&site=eds-live>.*
*Watson, K., 2019. Predictive Analytics in Health Care: Emerging Value and Risks. Deloitte Development LLC: New York, NY, USA.*
*https://www.statista.com/statistics/680201/australia-social-media-penetration/*
*https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)*
*https://www.aihw.gov.au/getmedia/a09eedb7-2a0d-43c1-a511-e424fca70635/aihw-cdk-10.pdf.aspx?inline=true*
*https://www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey-first-results/latest-release*