**Title**

Social media analytics for health and wellbeing: Case study of diabetes in adults

**Aims and field of research**

Around 1 million Australian adults had type 2 diabetes in 2017–18, according to self-reported data from the Australian Bureau of Statistics National Health Survey. This Information is to be underestimated as many cases remain unreported. This survey reports the people with diabetes type 2 who neither know nor accurately reporting their diabetes status.

According to the National Hospital Morbidity Database, in 2017–18, around 1 in 6 females, aged 15–49 who gave birth in hospital, were diagnosed with gestational diabetes. Between 2017–18, the rate of females diagnosed with gestational diabetes in Australia tripled, from 5.2% to 16.1%. So caution should be taken when comparing rates over time.

The strategy of Australian National Diabetes in 2016–2020 is to strengthen all sectors to develop implementing and evaluating an approach for reducing the social, human and economic impact of diabetes in Australia. The outlines of this strategy is to plan activities to develop and expand tangible improvements in prevention, early detection, management and care of diabetes. The government is planning strategies to direct a cost-effective and sustainable way to improve the health of all Australians and specifically to prevent people from developing diabetes and minimising the risks of complications associated with diabetes.

This requires working in partnership with government or other sectors to use affordable resources and technology to encourage and engage people in Australia to coordinate in prevention, detection and management of diabetes.

The Strategy approaches a broad range of areas such as healthy lifestyle initiatives for the general population, interventions for high-risk individuals and regulatory mechanisms.

In every 100 people with a diagnosis of type 2 diabetes in Australia, at least twenty-five people may be living with undiagnosed diabetes. Many diabetes-related complications are preventable. Therefore, it is essential that the early symptoms of diabetes are recognised, as failure to do so can lead to serious and potentially life-threatening complications. Develop appropriate social marketing campaigns such as social media improves awareness, consumer engagement and self-management and enhances healthy lifestyle, individual behaviour and social norms.

https://www.health.gov.au/sites/default/files/documents/2019/09/implementation-plan-for-the-australian-national-diabetes-strategy-2016-2020.pdf

Ref. : ABS 2019a. Microdata: National Health Survey, 2017–18. ABS cat. no. 4324.0.55.001. Findings based on Detailed Microdata File analysis. Canberra: ABS.

The rise of using digital technology and significantly smartphone devices among all age groups, encourage to promote prevention, management, and self-care of chronic diseases through online environments and especially social media on the top of daily usage.

One-on-one engagement in communicating with other people who are experiencing the same chronic condition is found useful to learn more about how to control and manage the condition to overcome some of these difficulties to facilitate self-care and improved health behaviors. This peer-to-peer communication through engaging on social media is a convenient and easy accessible way to address patients’ educational needs and providing real-time interaction with others who share many of the challenges in disease management.

In addition, more capable social media users have recognized the potential for providing support to others who are managing chronic conditions. A recent systematic review found supplementing usual health care services using social media platforms can satisfy patients’ social support needs with managing their CVD, which health providers cannot easily accommodate [36]. Therefore, leveraging social media may be a viable strategy to help improve self-care for diabetes. Understanding how patients use social media to manage their chronic disease is a first step in validating social media platforms as a potentially effective intervention strategy to provide peer-to-peer support and improve diabetes self-care.

The aim of this research is to analyse social media as the most popular interactive environment among people and diabetes community. The results of this social media analytics would be beneficial for government and to plan strategies to improve the awareness of people prevention and risk management before diagnose with diabetes and self-care and lifestyle management after diagnosis.

**Significance of research**

It will be implemented for people living in Australia. A cost-effective analysis. Focusing on social media as very popular environment to engage people not only to know about their opinions and lifestyle but also to share contents, images, vides to enhance their individual behaviour. Using modern technology for Social media analytics to predict for the future more precisely. Accessibility of consumers and true data through government and related organisations. High engagement of people in social media in the field of healthcare, lifestyle, self-care, self-assessment and diabetes. People’s, communities, governments and nonprofit and profit organisations engagement in the field of diabetes on diversity of Social media platforms such as fabebook, twiiter, youube

**Methodology and research techniques**

**Research Paradigm**

Pragmatism is the used paradigm for this research which is a framework for justification and development of mixed method approaches in social and behavioral researches (Tashakkori and Teddlie, 1998). Pragmatism designs guideline for developing more engaging technology-based for communicating and learning environment (NorlizaKatuk, 2012).

**Research approach and design**

Mixed method including quantitative and qualitative will be used in this research and the whole point is to widen the sources and types of data that can be collected in order to provide a stronger resource for analysis (Walliman, 2017). Mixed method is the best depth and breadth approach to evaluate the people’s reaction on social media for a learning base environment. Mixed method is the best research approach to evaluate the people’s reaction on social media. Quantitative methods can involve in preparing survey question and then collecting numerical data. Questionnaires will be prepared to measure people’s attitudes and opinions. This is used to access a large number of respondents which is too difficult and time consuming to observe with qualitative methods (Nardi, 2018). The surveys will be conducted online and via social media platforms with a low cost (Toepoel, 2017). Large pool of potential participants and widespread adoption of Facebook and ease of data collection make it an important platform for social researchers (Rife, 2014). The survey study will focus on collecting demographics, knowledge and current situation by recruiting participants and samples will be obtained for conducting reliable statistical analysis and survey on Facebook as a technique to collect data (Tisdell and Merriam, 2015).

Semi-structured interviews will be structured for this research to design and prepare the questions before interview (Crabtree B, 2006) Semi-structure interview will be planned to reach new ideas from the community by providing reliable, comparable qualitative data.

Quantitative method:

Participants in quantitative survey are sampling from the people active on social media platform such as facebook, twitter and youtube. Males and females Age 18+, members of diabetes communities on social media platforms. The population is sampling from the people who are active on social media platforms and interested in health and wellbeing, self-care, self-assessment and prevention.

Qualitative method

Participants who take part in Qualitative survey are recruiting from the people attend in the quantitative survey. Participants will be asked to take part in an interview. They are including volunteer males, females age 18+ who has diabetes

There are three main steps in analyzing social media: data identification, data analysis, and information interpretation. To maximize the value derived at every point during the process, analysts may define a question to be answered.gathering and analyzing data from social networks such as Facebook, Instagram, LinkedIn and Twitter. It is commonly used by marketers to track online conversations about products and companiesWe use various data mining and machine learning algorithms to analyze different types of data generated within these complex networks, attempting to produce usable knowledge. In order to perform any type of analysis, we first need to identify the correct sources of information. Then, we need APIs to initialize data extraction. Once data are available, cleaning and preprocessing are performed, which involve dealing with noise, outliers, missing values, duplicate data and aggregation, discretization, feature selection, feature extraction, sampling. The next step involves analysis, depending on the Social Media Analytics (SMA) task, the choice of techniques and methodologies varies (e.g. similarity, clustering, classification, link prediction, ranking, recommendation, information fusion). Finally, it comes to human judgment to meaningfully interpret and draw valuable knowledge from the output of the analysis step. This chapter discusses these concepts elaborating on and categorizing various mining tasks (supervised and unsupervised) while presenting the required process and its steps to analyze data retrieved from the Social Media (SM) ecosystem.

**Required facilities and equipment**