Chapter 6

COVID–19 Vaccination Perceptions, Issues, and Challenges:
An Analysis of Tweets Using Machine Learning Models

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ABSTRACT

The vaccines are developed to protect us from diseases, and these vaccines are saving millions of people every year. The acceptance of taking COVID-19 vaccinations was affected by their knowledge and opinion on COVID-19 vaccines. The ever-increasing misinformation and opposition to take COVID-19 vaccines have created a major problem for healthcare professionals in meeting the targets set for vaccine coverage. There is an urgent need to apply supportive and inclusive approaches to enhance people's self-confidence and acceptance of these vaccines by taking away their misconceptions. To control the spread of COVID-19 disease, practicing all the social operational standards and high vaccination coverage are required. Most healthcare workers in Asia are vaccinated. This chapter reviewed the papers on COVID-19 vaccination perceptions, issues, and side effects. The authors also designed a machine learning model to analyze the perceptions of the people from analysing their tweets. This analysis provides an insight into perceptions and drives-focused vaccination programmes.

INTRODUCTION

All viruses including coronavirus that leads to Covid-19 disease undergoes evolution with time. The virus makes copies of itself with minor random modifications each time for its sustainability. Vaccines will strengthen the body immune by fighting against viruses. The safety and effectiveness of vaccines are tested rigorously. Billions of people have safely received Covid-19 vaccines already. All licensed Covid-19 vaccines have been cautiously undergone a multi-stage testing process, with a large number of clinical trials involving tens of thousands of people. These clinical trials are carefully developed to discover all safety concerns. The Covid-19 vaccination drive needs to be the top priority to achieve herd immunity. The resistance to the Covid-19 vaccine is much higher than other vaccines. The benefits such as trust, protection, social acceptance are realized from vaccination promote taking Covid-19 are by the people. The people below the age group of 54 have more resistance to the Covid-19 vaccine. The vaccination acceptance rate is also associated with existing healthcare system performance, available support facilities during pandemic times. The vaccination drive should concentrate on areas where poor people live in less hygienic conditions with low Socio-Economic Status (SES) having heavy disease burden to ensure equality of vaccine distribution to provide more rigorous disease mitigation. Today there are many conflicting problems related to the frequency of administration, vaccine efficacy and durability, preferred vaccine type, pregnant/lactating women, and vaccination in children (<18 years). These problems need to

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