**CONCLUSIONS**

The research work presented in this article proposes a mathematical model to study the dynamic spreading and controlling activities of message transmission in OSNs. The proposed model employs differential equations for investigating the effect of verification and blocking of users and the spread of messages on OSNs. The expression for basic reproduction R0 is obtained, which is used to analyze the status of rumor in the social network. Results obtained indicates that if R0 is less than 1, then rumors and fake news will be eliminated and OSNs gets stabilized locally. The local stability of rumor free equilibrium is established by the Jacobian matrix. It is found that if the eigen values of the matrix are less than zero then the network will be asymptotically stabilize locally in nature and free from the rumors. The Lyapunov function used to establish the global asymptotic stable status of the social network. Mathematical analysis has been performed to depict the accuracy of the rumor-free equilibrium. The activities of different classes of users have also been examined in the social network. In future, the method of latent and isolation can be used for the prevention of social network from rumor spread and fake news propagation. The issues examined in this article are of direct current concern, and the pandemic COVID-19 is creating a global crisis in rumors and fake news propagating freely on OSNs which may continue until it is cured/handled. Real world data clearly show that fake news propagation can be harmful for people, businesses, and many other facets of society. The results in this article therefore, may help solve some of the current global issues related to fake news spread.