

Covid-19 Embedded with Aerosol Particles Travel Simulation Inside a Mosque



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Abstract When an infected person coughs, thousands of micro-size aerosol particles will transmit to the surrounding, especially in a closed space. Mosque is one of the confined areas that Muslims regularly go to pray together. Multiple standards of procedures have been proposed to prevent the virus transmission, however, the cases involving people praying in mosque are still reported. This study aims to simulate the virus transmission in mosque by modelling the aerosol particles generated by the worshipper coughing. A geometry of praying area in mosque was created mimicking the actual praying space. Realistic boundary conditions involving coughing, airflow at the inlet and outlet diffusers were specified. The simulation result confirms that the SARS-COV-2 virus in a closed space praying room is not uniform and it is strongly influenced by the location of the coughing source and the air conditioning layout. The study also recorded *Ma'mums* are at the higher chance to get infected if one of the *Ma'mum* is the COVID-19 carrier due to the nature of normal congregational praying arrangement. The outcomes of this study may help the scientist and the authorities to understand how dramatic COVID-19 virus may spread in the confined praying area, hence, may enforce a better standard of procedure in a mosque.

Keywords COVID-19 · Aerosol particle · Mosque · Indoor space

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