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IMPACT OF COVID-19 ON WATER CONSUMPTION HABITS IN KOCAELI TURKEY

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Abstract

Water is an indispensable resource vital for sustaining life, but with the global population escalating rapidly, the demand for water is incessantly on the rise. However, Turkey's per capita water resources are below the world average, making it necessary to use existing water resources efficiently and sustainably through hardware and software technologies. In addition, climate change and disease outbreaks, such as COVID-19, significantly affect water demand. Statistical analysis revealed significant differences in water consumption patterns between pre-pandemic and pandemic periods for both hourly ($p < 0.001$) and monthly ($p < 0.001$) data, with varying impacts across different subscriber types (commercial, official, and residential). To forecast water demand during such periods, hourly water consumption data from 33 households were analyzed, showing a 27.93% increase in water consumption during the pandemic compared to the pre-pandemic period. A monthly analysis of water consumption data from approximately 800,000 subscribers (including all subscriber types) in Kocaeli also revealed a 1.04% increase in monthly water consumption per subscriber in 2022 compared to the pre-pandemic period in 2019. These findings highlight the importance of efficient water management and the need for more accurate forecasting of water demand during crisis periods.

Key words: impact of covid-19, lockdown, water consumption, water management, water sustainability

Received: March, 2024; Revised final: August, 2024; Accepted: November, 2024; Published in final edited form: August, 2025

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