

significant difference between the two groups, as the z-value was less than the critical value and the p-value was greater than 0.05. This finding is supported by Christian *et al.* (2022), who reported a general consensus among respondents on the factors influencing waste disposal practices, particularly in relation to environmental and socio-economic conditions. The implication is that both household heads and environmental health officers share similar understanding of the determinants of sewage disposal practices, thereby strengthening the credibility of the findings. On the contrary, Ifyalem and Jakada (2023) found that housing conditions and environmental factors influence individuals differently, particularly in relation to health outcomes and waste management practices. The implication of this contrasting finding is that although this study found no significant difference, variations in perception may still occur depending on housing conditions and individual experiences.

The findings regarding research question four on the environmental impacts associated with domestic sewage disposal in Kaduna Metropolis. The findings of the study indicate that improper domestic sewage disposal has several environmental consequences. Among the identified impacts are groundwater contamination, soil pollution, foul odour, surface water contamination, and the spread of disease vectors such as flies and mosquitoes. Some findings are related to water-related environmental impacts, which include groundwater contamination, surface water pollution, and contamination of shallow wells. This finding is consistent with Moore *et al.* (2019), who reported that improper sewage disposal leads to contamination of water sources, particularly through open discharge into rivers and surrounding environments. The implication is that water resources in Kaduna Metropolis are at significant risk, which may affect both domestic water supply and overall environmental sustainability.

The study found another environmental impacts related to land and soil degradation, which include soil pollution around septic tanks, erosion, and reduced soil fertility due to chemical infiltration. This aligns with Gaya *et al.* (2018), who found that improper waste disposal leads to serious environmental degradation, including land pollution and deterioration of surrounding ecosystems. The implication is that continuous discharge of untreated sewage can degrade land quality, making it unsuitable for agriculture and other uses. The findings on air and aesthetic impacts, such as foul odour, unpleasant environmental conditions, and reduced environmental aesthetics are supported by Adesogan (2018), who noted that poor sewage management leads to offensive odours and deterioration in quality of life. The implication is that beyond physical environmental damage, improper sewage disposal also affects the comfort, well-being, and livability of residential areas.

Similarly, the study found ecological and biological impacts, which includes the spread of disease vectors, microbial contamination, and degradation of aquatic ecosystems. This finding agrees with Oluseyi and Nweke (2020), who observed that poor sewage management contributes to the proliferation of harmful microorganisms and environmental pollution. The implication is that improper sewage disposal disrupts ecological balance and increases the risk of disease transmission. However, a contrary finding is observed in Adenaiya and Ojuawo (2022), who reported that with proper sewage management practices such as recycling and controlled disposal, environmental impacts can be minimized. The implication of this contrast is that environmental degradation is not inevitable but largely dependent on how sewage is managed, suggesting that improved systems can significantly reduce negative impacts.

Hypothesis Four stated that there is no significant difference between the mean responses of household heads and environmental health officers on the environmental impacts of domestic sewage disposal in Kaduna Metropolis. The findings revealed that