

ABSTRAK

ANALISIS BAHAN BAKU AIR MINUM DAN METODE STERILISASI TERHADAP CEMARAN BAKTERI *ESCHERICHIA COLI* PADA DEPOT AIR MINUM ISI ULANG DI KELURAHAN PASAR SENTRAL KABUPATEN MIMIKA PAPUA

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Depot air minum adalah industri yang mengelola air baku agar dapat langsung dikonsumsi dan dijual kepada konsumen. Dari 30 DAMIU di Kelurahan Pasar Sentral, Kabupaten Mimika, 14 tidak memenuhi syarat higiene sanitasi menurut Permenkes No. 43 Tahun 2014. Masalah termasuk infestasi hama, kurangnya akses kamar mandi, peralatan yang tidak sesuai, pekerja tidak memakai pakaian bersih, dan air tidak memenuhi standar fisik, mikrobiologi, serta kimia. Hanya 18 depot rutin memeriksa kualitas air sesuai Permenkes No. 2 Tahun 2023. Tujuan penelitian ini untuk menganalisis hubungan bahan baku air minum dan metode sterilisasi dengan cemaran bakteri *Escherichia Coli* pada depot air minum isi ulang di Kelurahan Pasar Sentral Kabupaten Mimika Papua. Desain penelitian ini adalah penelitian kuantitatif observasional dengan pendekatan *cross sectional* dengan fokus penelitiannya diarahkan untuk akan menganalisis hubungan bahan baku air minum dan metode sterilisasi dengan cemaran bakteri *Escherichia Coli* pada depot air minum isi ulang di Kelurahan Pasar Sentral Kabupaten Mimika Papua. Jumlah populasi sejumlah 33 responden dan sampel sebanyak 30 responden yang diambil dengan teknik *Simple Random Sampling*. Hasil temuan didapatkan bahwa sebagian besar responden memiliki bahan baku air minum kategori baik sebanyak 26 responden (86,7%). Sebagian besar responden memiliki metode sterilisasi kategori baik sebanyak 28 responden (93,3%). Sebagian besar responden tidak ada cemaran *E.Coli* (aman) sebanyak 27 responden (90,0%). Berdasarkan hasil analisis *Pearson* menunjukkan bahwa nilai $p\text{-value } 0,003 < 0,05$ maka H_1 diterima jadi disimpulkan bahwa ada hubungan bahan baku air minum dengan cemaran bakteri *Escherichia Coli* pada depot air minum isi ulang di Kelurahan Pasar Sentral Kabupaten Mimika Papua. Berdasarkan hasil analisis *Pearson* menunjukkan bahwa nilai $p\text{-value } 0,000 < 0,05$ maka H_0 ditolak dan H_1 diterima jadi disimpulkan bahwa ada hubungan metode sterilisasi dengan cemaran bakteri *Escherichia Coli* pada depot air minum isi ulang di Kelurahan Pasar Sentral Kabupaten Mimika Papua. Sumber air baku yang berasal dari air tanah dan air permukaan di wilayah ini rentan terhadap kontaminasi oleh limbah domestik dan industri, terutama di daerah dengan infrastruktur sanitasi yang tidak memadai. Kombinasi metode sterilisasi dapat memberikan perlindungan tambahan terhadap kontaminasi mikrobiologis, yang sangat penting untuk memastikan air minum yang aman dan berkualitas tinggi.

Kata Kunci : Air Minum, *Escherichia Coli* & Metode Sterilisasi

ABSTRACT

ANALYSIS OF DRINKING WATER RAW MATERIALS AND STERILIZATION METHODS OF *ESCHERICHIA COLI* BACTERIAL CONTAMINATION AT REFILLED DRINKING WATER DEPOT IN PASAR SENTRAL VILLAGE, MIMIKA PAPUA DISTRICT

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Drinking water depots are industries that manage raw water so that it can be consumed directly and sold to consumers. Of the 30 DAMIUs in Pasar Sentral Subdistrict, Mimika Regency, 14 do not meet the sanitation hygiene requirements according to Minister of Health Regulation no. 43 of 2014. Problems include pest infestations, lack of bathroom access, inappropriate equipment, workers not wearing clean clothes, and water not meeting physical, microbiological and chemical standards. Only 18 depots routinely check water quality according to Minister of Health Regulation no. 2 of 2023. The aim of this research is to analyze the relationship between drinking water raw materials and sterilization methods with Escherichia Coli bacterial contamination at refill drinking water depots in Pasar Sentral Village, Mimika Regency, Papua. The design of this research is quantitative observational research with a cross sectional approach with the research focus directed at analyzing the relationship between drinking water raw materials and sterilization methods with Escherichia Coli bacterial contamination at refill drinking water depots in Pasar Sentral Village, Mimika Regency, Papua. The total population was 33 respondents and the sample was 30 respondents taken using the Simple Random Sampling technique. The findings showed that the majority of respondents had good drinking water raw materials, 26 respondents (86.7%). Most respondents had a sterilization method in the good category, 28 respondents (93.3%). Most of the respondents did not have E.Coli contamination (safe) as many as 27 respondents (90.0%). Based on the results of Pearson's analysis, it shows that the p-value is $0.003 < 0.05$, so H_1 is accepted so it is concluded that there is a relationship between drinking water raw materials and Escherichia Coli bacterial contamination at the refill drinking water depot in Pasar Sentral Village, Mimika Regency, Papua. Based on the results of Pearson's analysis, it shows that the p-value is $0.000 < 0.05$, so H_0 is rejected and H_1 is accepted, so it is concluded that there is a relationship between the sterilization method and Escherichia Coli bacterial contamination at the refill drinking water depot in Pasar Sentral Village, Mimika Regency, Papua. Raw water sources originating from groundwater and surface water in this region are vulnerable to contamination by domestic and industrial waste, especially in areas with inadequate sanitation infrastructure. A combination of sterilization methods can provide additional protection against microbiological contamination, which is critical to ensuring safe, high-quality drinking water.

Keywords: *Drinking Water, Escherichia Coli & Sterilization Method*