

UNIVERSITI TEKNOLOGI MARA

**ALUMINIUM LEVEL IN WATER SUPPLY AND
HEALTH EFFECT (MEMORY ABILITY)
AMONG HOUSEWIFE AT TEMERLOH**

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In the name of Allah, the most Gracious, the most Merciful

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Aluminium Level in Water Supply and Health Effect (Memory Ability) among Housewife at Temerloh

Zulaikha Jannah Binti Amnizar

Abstract

A cross sectional study has been conducted 100 housewives from two study areas which were selected based on the exposure to high level aluminium and low level aluminium in water supply. The objective of the study was to determine the aluminium level and memory ability among housewives at Temerloh. 100 housewives (n=100) have been selected from matching of criteria based on stratified random sampling. Study instruments were included questionnaire, water analyzing were using DR2000 HACH, to asses memory ability by using Neurobehavioral core test battery by World Health Organization (WHO) and Mini Mental Stated Examination. The result showed that the mean aluminium level in water supply at Loji Mempateh (0.129 mg/ L) was significantly difference (t=9.739, p<0.001) higher than Loji Lubuk Kawah (0.00mg/L). It was also found that the different of memory ability between study group and control group was no significantly difference for Digit Span (z= -0.214, p=0.830), Visual Benton Retention (z= -0.574, p=0.566), The Shopping List (z= - 0.626, p=0.531), The Name Recall (z= -1.614, p=0.107) and The Name and Face Recall (z= - 0.587, p=0.557). The correlation between high level aluminium and memory ability was found that significantly correlation for Digit Span (r= - 0.356, p=0.011), Visual Benton Retention (r= - 0.306, p=0.031) and The Name and Face Recall (r= - 0.291, p=0.041). The two test of correlation between high level aluminium and memory were no significantly; The Shopping List (r= - 0.042, p=0.771) and The Name Recall (r= - 0.187, p=0.193). This study showed that the aluminium level in water supply influenced memory ability among housewife.

CHAPTER ONE

INTRODUCTION

1.1. Background

Aluminium occurs naturally and makes up about 8% of the surface of the earth (WHO, 2003). It is always found combined with other elements such as oxygen, silicon and fluoride (Maleki *et.al.*, 2005). Aluminium metal is silver-white and flexible. It is often in cooking utensils, container, appliances, and building materials. It is also used in paints and fireworks; to produce glass, rubber and ceramics and in consumers' product such as antacids, astringents, buffered aspirin, food additives and antiperspirants (ATSDR, 2002).

Aluminium as a coagulant in water treatment is recognized. Taking this account and considering the health concerns about aluminium where aluminium potential neurotoxicity and a practicable level derived, based on optimization of coagulants process in drinking water plant using aluminium based coagulant to minimize aluminium levels finished water (WHO, 2003).