PREVALENCE OF OBESITY IN MENTALLY DISABLED CHILDREN ATTENDING SPECIAL EDUCATION INSTITUTES IN KHARTOUM STATE

Thesis

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Abstract

Obesity is a major public health concern internationally and this study aims to identify the Prevalence of obesity in mentally disabled children in special education centers in Khartoum state.

This study was conducted at the forty special education institutes in Khartoum state including its seven governorates (Khartoum, Jabal Olia, Omdurman, Karary, Ambdh, Bahry, and East Nile). The number of children was 290 children; 190 males and 100 females at age of 10-18 years. This is a descriptive study to identify the Prevalence of obesity in mentally disabled children in special education centers in Khartoum state. Obesity was defined according to the child's percentage weight for height. All children had an Intelligence Quotient (I.Q) test carried out within the last six months prior to the start of this study. Intelligence Quotient (I.Q) test was conducted using the Stanford – Binet test that was adapted to the Sudanese culture by Malik Badri. The study showed that the prevalence of the obesity in mentally disabled children is 28.3% where it reaches 27.4% in males and 30.0% in females. The prevalence of the obesity is insignificant associated with sex, age or Intelligence Quotient of the children. Nutrition care should be incorporated in the multi-dimensional care for such group of children.

Key words:

Obesity - Mental retardation - Children - Khartoum state.

Contents

List of Abbreviations

ACTH : Adreno Corticotrophic Hormone

AIs : Adequate Intakes

BAIQ : Below-Average Intelligence Quotient

BMI : Body Mass Index

BMR : Basal Metabolic Rare

C.N.S. : Central Nervous System

C.P. : Cerebral Palsy

Ca : Calcium

CDC : Centers for Disease Control and Prevention

CHO : Carbohydrate

CMV : Cytomegalovirus

CO_2 : Carbon Dioxid

Dept : Department

DRIs : Dietary Reference Intakes

DS : Down's syndrome

DSM : Diagnostic and Statistical Manual of Mental Disorders

EAR : Estimated Average Requirements

EER : Estimated Energy Requirements

ER : Energy requirement

FAO : Food and Agriculture Organization

FDA : Food and Drug Administration

g : Gram

g/d : Gram Per Day

gm/ cm/day : Gram Per Centimeter Per Day

HIV : Human immunodeficiency virus

IBM : International Business Machines

ICD-10 : International Classification of Diseases-10

IOM : Institute of Medicine

IQ : Intelligence Quotient

KC/gm : Kilo Calorie per gram

K-cal : Kilo Calorie

kcals/day : Kilo Calorie per day

Kg : Kilogram

Kg/m^2 : Kilogram per meter square

LDL : low-density lipoprotein

M R : Mental Retardation

M.O.H : Ministry Of Health

mg/day : Milli gram per day

MRCs : Mental Retardation Centers

NG : Normal Growth

NGO's : Non Governmental Organizations

NHBS : National Household Baseline Survey

NNI : National Nutrition Institute

No : Number

PA : Physical Activity Level

RDAs : Recommended Dietary Allowances

SPSS : Statistical Package of Social Science

TSF : Triceps skin fold thickness

TV : Television

UK : United Kingdom

US : United States

USA : United States of America

W/H^2 : Weight for Height Square

WAIS : Wechsler Adult Intelligence Scale

WHO : World Health Organization

WISC : Wechsler Intelligence Scale for Children

wt : Weight

yrs : Years

µg/d : Micrograms per day

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INTRODUCTION

Children, the most valuable part of the nation's life, and the biggest promise for the future prosperous, deserve much attention from community, Governments and both international and bilateral, world organizations at large to promote actively health, wellbeing and welfare to meet their needs **(Daniels et al, 2005).**

Globally, child health worldwide is profoundly affected by economic, social behavioral, political, scientific and technological factors **(Robert et al, 2003).**

Overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems. Behavior, environment, and genetic factors can affect whether a person is overweight or obese **(Simic, 2010).**

Obesity at adolescence is an issue because it tends to persist in adulthood and the longer its duration, the higher the associated mortality and morbidity. Obesity imposes a heavy health and social burden and is widely recognized that treatment is not only costly but remarkably ineffective. Prevention is now crucial and adolescents should be a priority target (**Delisle et al, 2000).**

Dietary habits and food preferences which affect energy consumption and nutrient intake are generally developed over a period of time and particularly during adolescence. Two major

factors affect food choices during adolescence; the first is a greater quest for independence, coupled with lack of knowledge and experience necessary to make adequate evaluations of dietary practice, and may lead to adoption of ill conceived diets. The second factor is greater purchasing power to obtain meals, snacks, rather than relying solely on family foods **(M.O.H, New Zealand, 1998).**

Establishing healthy eating habits at young age is critical to proper growth and development; it also makes it more likely that healthy habits will continue into adulthood. It helps to prevent childhood and adolescence health problems such as overweight, eating disorders and iron deficiency anemia **(CDC, 2005).**

The importance of overweight and obesity related to people with disabilities is a particular problem of public health importance. Obesity is more prevalent among people with disabilities than for people without disabilities and is an important risk factor for other health conditions **(Lewis, 2003).**

There are world growing interests concerning the disability problem during new millennium. Sudan is considered one of the worldwide nations facing this pressing problem **(El sayed et al, 2007).**

The problem of mental disability has multiple aspects and dimensions. It has medical, social, educational, psychological, rehabilitation, and vocational dimensions. These dimensions overlap with each other which make this problem a unique model in

the configuration and required cooperation between the different organizations in these areas to solve the problem **(Sebastian, 2007).**

It has been stated that mental disorders constitute a major part of disability (over 10%) of the health burden in the world **(Dennis, 2001).**

In developed countries, the prevalence of severe mental retardation in children is consistently found to range from 3-5 per 1000. More than 50% of cases are attributed to genetic causes. There are noticeable elevated prevalence rates of severe mental retardation in less developed countries (5-25 per 1000) due to higher prevalence of nutritional, traumatic and infectious causes of brain damage **(Shapiro et al, 2011).**

Children with mental disabilities, in general, suffer from many psychic and organic diseases and obesity represents additional suffering for them. It makes them vulnerable to irony their peers and their comments especially in schools and private centers in the neighborhood, which result in some psychological problems. Also, researches showed that the cardiovascular and other some diseases are more common in those who suffer from obesity in childhood **(Lewis, 2003).**

Medical research proved a link between obesity in childhood and its occurrence in adulthood. Mentally disabled children, who are obese between the ages of seven and fourteen, are vulnerable to remain obese at the age of maturity and they are candidates to suffer

from health problems such as diabetes, heart disease and others **(Spear, 2004).**

Studies have shown that the care of mentally disabled is fruitful and that its economic and social than what is paid out of money and efforts. It has been shown from the results of studies that medical care, social, psychological, educational and rehabilitation for the disabled, leading to their development in many ways and helps about 75% of them to exercise like normal one. So medical scientists call for taking care of this category and make them productive force in the construction and development of their communities. **(Story and Stang, 2005).**

Mental Health Services in Sudan focus mainly on provision of Generic adult psychiatric services and no special provision for children and adults with MR (Mental Retardation). On the other hand many private educational services started to invest in provision of services for people living within the main cities **(El sayed et al., 2007).**

A study made in Cairo found that the prevalence of obesity in mentally disabled children is 12.5% while the obesity in normal children is 6.6% **(National Nutrition Institute, 2007).**

Another study is made in Scotland found the prevalence of obesity in mentally disabled children is 36% **(Stewrt et al., 2007).**

The prevalence of obesity among school children in Khartoum state at the ages of 10 and 18 years is 9.0%. The

prevalence of mentally retarded children in Khartoum state is 1.7% according to last Khartoum census. However, no studies were conducted in Khartoum state to show the prevalence of obesity in mentally retarded children **(Elhussein et al., 2011).**