



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**HANAA ALY**



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التوثيق الإلكتروني والميكروفيلم



# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



### يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**HANAA ALY**

**EFFECTIVENESS OF A PROPOSED PROGRAM FOR IMPROVING  
NUTRITIONAL HABITS AMONG MALNOURISHED CHILDREN  
AT SCHOOL AGE**

(AN APPLIED STUDY IN ELOTHMANYA VILLAGE – EL-GHARBYIA GOVERNORATE)

**Submitted By**

**Doaa El Sayed Ahmed Esmael**

M.B.B.Ch., Faculty of Medicine, Cairo University, 2002

Master in Family Medicine, Faculty of Medicine, Cairo University, 2014

A Thesis Submitted in Partial Fulfillment  
Of  
The Requirement for the Doctor of Philosophy Degree  
In  
Environmental Sciences

Department of Environmental Medical Sciences  
Institute of Environmental Studies and Research  
Ain Shams University

**2021**

APPROVAL SHEET  
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## *Abstract*

**Background:** school children pass through great physical and mental changes which affect both their growth and school performance, childhood malnutrition is a major concern in developing countries.

**Objective:** the aim of this study was to identify the prevalence of vitamin A deficiency among anemic children in EL Othmanya village, to identify the current dietary practices including risky nutritional habits among target group: the malnourished children (overweight/obesity) under weight and those who suffer from vitamin A deficiency among anemic children and to improve the nutritional awareness and practices of balanced meals food groups through focusing on the three recommended key behaviors (Manage portions, choose nutritious and varied options, choose to drink water) among target group.

**Methodology:** It was a community based nutrition education intervention study targeted three groups: overweight/ obesity, underweight and those who suffer from vitamin A deficiency among Anemic children in El Othmanya village of El Mahala district- Gharbyia governorate using questionnaires, educational tools and model kitchen- Anthropometric measurements and laboratory Assessment were used.

**Results:** In obesity group, children mothers' age ranged from 23 to 46 years with mean  $32.3 \pm 5.7$  most of them were housewives. Mean age of obese children was  $10.8 \pm 2.4$ . Mean WAZ score was  $2.64 \pm 1.2$  improved to  $1.27 \pm 0.7$ . Knowledge of mothers generally improved with average 33.3% regarding obesity. In underweight group, mother's age ranged from 24 to 52 years with mean  $36.7 \pm 6.1$ . mean age of underweight children was  $11 \pm 1.9$  mean WAZ score was  $-1.8 \pm 0.8$  and ranged from -3.09 to -1.02 improved to  $-0.2 \pm 0.6$  knowledge of mothers generally improved with average of 37.3% regarding underweight. In vitamin A deficiency group, mother's age ranged from 25 to 49 years with mean  $33.7 \pm 5.8$ . Mean age of children was  $9.21 \pm 0.2$  Mean WHZ score was  $0.02 \pm 1.06$  and ranged from 1.17 to 1.04. Mean vitamin A was  $35.66 \pm 26.99$  improved to  $146.9 \pm 102.8$ . Mean Hemoglobin was  $9.77 \pm 0.9$  improved to  $11.39 \pm 0.9$ . Knowledge of mothers generally improved with average 75.1 in vitamin A deficiency group.

**Conclusion and Recommendations:** There was an acceptable level of knowledge of mothers regarding the malnutrition of children, using different varied teaching and raising awareness strategies can enhance the learning outcome and improve body mass index.

**Key Words:**

**(Malnutrition, Obesity, Underweight, vitamin A deficiency, Knowledge, School children)**

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## *List Of Abbreviations*

|                   |                                                                                |
|-------------------|--------------------------------------------------------------------------------|
| <b>AHA</b>        | <b>American Heart Association</b>                                              |
| <b>BMI</b>        | <b>body mass index</b>                                                         |
| <b>BMI Zscore</b> | <b>Body Mass Index Zscore</b>                                                  |
| <b>CAL</b>        | <b>Calories Intake</b>                                                         |
| <b>CDC</b>        | <b>Centers of Disease Control</b>                                              |
| <b>CHD</b>        | <b>coronary heart disease</b>                                                  |
| <b>CVD</b>        | <b>cardiovascular diseases</b>                                                 |
| <b>DRIs</b>       | <b>Daily Recommended Intakes</b>                                               |
| <b>EDHS</b>       | <b>Egypt Demographic and Health Survey</b>                                     |
| <b>EMR</b>        | <b>Eastern Mediterranean Region</b>                                            |
| <b>FFQS</b>       | <b>Food Frequency Questionnaires</b>                                           |
| <b>FHU</b>        | <b>Family Health Unit</b>                                                      |
| <b>GM</b>         | <b>Growth monitoring</b>                                                       |
| <b>GMP</b>        | <b>Growth monitoring and promotion</b>                                         |
| <b>HAZ</b>        | <b>Height Age Zscore</b>                                                       |
| <b>Hb</b>         | <b>Hemoglobin</b>                                                              |
| <b>HBSC</b>       | <b>Health behavior in school going children</b>                                |
| <b>HIV</b>        | <b>Human Immunodeficiency Virus</b>                                            |
| <b>IMCI</b>       | <b>integrated management of childhood illness</b>                              |
| <b>IOTF</b>       | <b>International Obesity Taskforce</b>                                         |
| <b>I.Q</b>        | <b>Intelligence Quotient</b>                                                   |
| <b>ISCOLE</b>     | <b>International Study of Childhood Obesity, Lifestyle and the Environment</b> |
| <b>IYCF</b>       | <b>Infant and young child feeding</b>                                          |
| <b>KAP</b>        | <b>Knowledge, Attitudes and Practices</b>                                      |
| <b>Kg/m</b>       | <b>Kilograms by the square of their height in meters</b>                       |
| <b>LBW</b>        | <b>low birth weight</b>                                                        |
| <b>LOC</b>        | <b>loss of control</b>                                                         |

|                |                                                         |
|----------------|---------------------------------------------------------|
| <b>MDGs</b>    | <b>Millennium Development Goals</b>                     |
| <b>MI</b>      | <b>Micronutrient Initiative</b>                         |
| <b>MUAC</b>    | <b>mid upper arm circumference</b>                      |
| <b>NCHS</b>    | <b>National Center for Health Statistics</b>            |
| <b>NHANES</b>  | <b>National Health And Nutrition Examination Survey</b> |
| <b>OR</b>      | <b>Odds Ratio</b>                                       |
| <b>ORT</b>     | <b>oral rehydration therapy</b>                         |
| <b>PA</b>      | <b>Physical Activity</b>                                |
| <b>PE</b>      | <b>physical education</b>                               |
| <b>PEM</b>     | <b>Protein Energy Malnutrition</b>                      |
| <b>PHU</b>     | <b>Primary Health Care Unit</b>                         |
| <b>RBCs</b>    | <b>red blood cells</b>                                  |
| <b>RE</b>      | <b>retinol equivalent</b>                               |
| <b>RTHC</b>    | <b>Road to Health Charts</b>                            |
| <b>SD</b>      | <b>standard deviation</b>                               |
| <b>SES</b>     | <b>socioeconomic status</b>                             |
| <b>T.B</b>     | <b>Tuberculosis</b>                                     |
| <b>TV</b>      | <b>Television</b>                                       |
| <b>UK</b>      | <b>United Kingdom</b>                                   |
| <b>UNCICEF</b> | <b>United Nations Children Fund</b>                     |
| <b>US</b>      | <b>United States</b>                                    |
| <b>USDHHS</b>  | <b>US Department of Health and Human Services</b>       |
| <b>VAD</b>     | <b>Vitamin A Defeciency</b>                             |
| <b>WAZ</b>     | <b>Weight Age Z score</b>                               |
| <b>WFB</b>     | <b>World Food Programme</b>                             |
| <b>WHO</b>     | <b>World Health Organization</b>                        |
| <b>YRBS</b>    | <b>Youth Risk Behavior Survey</b>                       |

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