

شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلو

# بسم الله الرحمن الرحيم





MONA MAGHRABY



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلو



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



MONA MAGHRABY



شبكة المعلومات الجامعية التوثيق الإلكترونى والميكروفيلم

# 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



MONA MAGHRABY



# Nutritional screening for 2-5 years old children in urban and rural outpatient setting

#### Thesis

Submitted for partial fulfillment of the Master Degree in *Pediatrics* 

#### **Presented by**

#### Ahmed Kamal Ahmed Mahdy

M.B.B.CH Ain Shams University (2010)

#### **Under supervision of**

#### Prof. Mohamed Ashraf Abd El Wahed

Professor of Pediatrics Faculty of Medicine-Ain Shams University

#### **Prof. May Fouad Nassar**

Professor of Pediatrics Faculty of Medicine-Ain Shams University

#### Dr. Heba Essam El Din El Kholy

Lecturer of Pediatrics Faculty of Medicine- Ain Shams University

Faculty of Medicine
Ain Shams University
2020



سورة البقرة الآية: ٣٢

## Acknowledgment

First and foremost, I feel always indebted to AUAH, the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to **Prof.** Mohamed Ashraf Abd El Wahed, Professor of Pediatrics - Faculty of Medicine- Ain Shams University for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.

I am also delighted to express my deepest gratitude and thanks to **Prof. May Found Massar**, Professor of Pediatrics, Faculty of Medicine,
Ain Shams University, for her kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.

I am deeply thankful to **Dr. 7beba Essam El Din El Kholy**, Lecturer of Pediatrics, Faculty of
Medicine, Ain Shams University, for her great help,
active participation and guidance.

I would like to express my hearty thanks to all my family for their support till this work was completed.

Last but not least my sincere thanks and appreciation to all patients participated in this study.

Ahmed Kamal Ahmed Mahdy

## List of Contents

Title	Page No.
List of Abbreviations	i
List of Tables	iii
List of Figures	vi
Introduction	1
■ Malnutrition	3
Screening Tools for Malnutrition	10
Aim of the Study	18
Patients and Methods	19
Results	29
Discussion	104
Summary	116
Conclusion	
Recommendations	120
References	
Arabic Summary	

### List of Abbreviations

Abb.	Full term
ASPEN	.American Society for Parenteral and Enteral Nutrition
BMI	. Body mass index
	. Center for Disease Control
CHO	$.\ Carbohydrate$
<i>ESPEN</i>	. European Society for Clinical Nutrition and Metabolism
HAZ	. Height for age Z score
HFA	. Height for age
<i>IMCI</i>	. Integrated Management of Childhood Illness
<i>IQP</i>	Inter-quartile range
<i>K</i>	. Potassium
<i>NCHS</i>	National Center for Health Statistics
<i>NNI</i>	.National Nutrition Institute
NRS	.Nutritional risk screening
<i>NSTs</i>	.Nutritional screening tools
NutriSTEP	.Nutrition Screening Tool for Every Preschooler
<i>OTP.</i>	. Outpatient therapeutic feeding program
Ph	. Phosphorus
PNRS	. Pediatric Nutritional Risk Score
<i>PNST</i>	.Pediatric nutrition screening tool
<i>PYMS</i>	. Pediatric yorkhill malnutrition score
<i>RDA</i>	.Recommended dietary allowance
<i>SAM</i>	. Sever acute malnutrition
<i>SD</i>	.Standard deviation
SGA	.Subjective global assessment
<i>SGNA</i>	.Subjective global nutritional assessment
<i>SPSS</i>	. Statistical Package for Social Science
<i>STAMP</i>	.Screening tool for assessment of malnutrition
	in pediatric

### List of Abbreviations (Cont...)

Abb.	Full term
STRONG kids	Screening tool risk on nutritional state and
	growth
<i>UK</i>	United kingdom
<i>UNICEF</i>	United Nations International Children's
	Emergency foundation
<i>WAZ</i>	Weight for age Z score
<i>WFA</i>	Weight for age
<i>WFH</i>	Weight for height
<i>WHO</i>	World health organization

## List of Tables

Table No.	Title	Page No.
Table (1):	Nutritional screening tools in pediatric systematic review	
<b>Table (2):</b>	A step-by-step guide to using STAMP	
<b>Table (3):</b>	Age and sex distribution among the study p	
<b>Table (4):</b>	Age and sex distribution among population in each hospital	
<b>Table (5):</b>	Mean anthropometric measurements of population at El-Wahat hospital $(N=45)$	
<b>Table (6):</b>	Nutritional analysis of the study popula Wahat hospital	
<b>Table (7):</b>	Mean anthropometric measurements of population at Bolaque hospital in the $(N=45)$	first visit
<b>Table (8):</b>	Nutritional analysis of the study por Bolaqu hospital in the first visit	
<b>Table (9):</b>	Mean anthropometric measurements of population at El-Badrashine hospital i visit (N=45)	n the first
<b>Table (10):</b>	Nutritional analysis of the study popular Badrashine hospital in the first visit	tion at El-
<b>Table (11):</b>	Comparison between the three groups is visit as regards anthropometric measurer	
<b>Table (12):</b>	Comparison between the three groups significant anthropometric measurements	_
<b>Table</b> (13):	Comparison between the three groups is visit as regards the nutritional analysis	
<b>Table (14):</b>	Mean anthropometric measurements of population at Bolaque hospital in the s (N=45)	second visit
<b>Table (15):</b>	Nutritional analysis of the study populatio hospital in the second visit	n at Bolaqu

### List of Tables (Cont...)

Table No.	Title	Page No.
Table (16):	Mean anthropometric measurements of	v
	population at Bolaque hospital in the (N=45)	56
<b>Table (17):</b>	Nutritional analysis of the study pop Bolaque hospital in the third visit	
Table (18):	Comparison between all visits of the stud Bolaque hospital as regards anth measurements	ropometric
<b>Table (19):</b>	Comparison between all visits of the stud Bolaque hospital as regards anthropometric measurements	significant
<b>Table (20):</b>	Comparison between all visits of the stud Bolaque hospital as regards the nutrition	
<b>Table (21):</b>	Comparison between all visits of the student Bolaque hospital as regards significant analysis	nutritional
Table (22):	Mean anthropometric measurements of population in El-Badrashine hospital in visit (N=45)	the study the second
<b>Table (23):</b>	Nutritional analysis of the study popula Badrashine hospital in the second visit (N	tion in El-
<b>Table (24):</b>	Mean anthropometric measurements of population at El-Badrashine hospital in visit (N=45)	the third
<b>Table (25):</b>	Nutritional analysis at El-Badrashine the third visit	-
<b>Table (26):</b>	Comparison between all visits of the student El-Badrashine hospital as regards anth measures	dy group in ropometric
<b>Table (27):</b>	Comparison between all visits of the stude El-Badrashine hospital as regards anthropometric measurements	ly group in significant

### List of Tables (Cont...)

Table No.	Title	Page No.
Table (28):	Comparison between all visits of the stu El-Badrashine hospital as regards the analysis	nutritional
<b>Table (29):</b>	Comparison between all visits of the study Badrashine hospital as regards significan analysis	t nutritional
Table (30):	Comparison between Bolaque and Elstudy groups in the second visit anthropometric measurements after the intervention	as regards nutritional
<b>Table (31):</b>	Comparison between Bolaque and Elstudy group in the second visit as regard analysis after nutritional intervention	l nutritional
Table (32):	Comparison between Bolaque and Elstudy group in the third visit as reganthropometric measurements after intervention	gards mean nutritional
<b>Table (33):</b>	Comparison between Bolaque and Elstudy group in the third visit as regards analysis after the nutritional intervention	nutritional
Table (34):	Comparison between the study groups of El-Badrashine as regards the effect of intervention on anthropometric measure nutritional analysis after the third visit	nutritional ements and
Table (35):	Correlation between STAMP score and studied parameters at different times of n in all cases	neasurement

# List of Figures

Fig. No.	Title	Page N	lo.
Figure (1):	Mechanical weight scale ZT-160		21
Figure (2):	Stadiometer Seca 217		
Figure (3):	Nutritional analysis of 24 hr dietary rec		
Figure (4):	Distribution of enrolled patients and t		20
119410 (1).	of nutritional rehabilitation program		29
Figure (5):	Mean Age among the study population		
Figure (6):	Mean sex among the study population.		
Figure (7):	Comparison between the three group		
	first visit as regards STAMP score		49
Figure (8):	Comparison between the three visits in	Bolaque	
	hospital as regards STAMP score		62
Figure (9):	Comparison between all visits of study		
	Bolaque hospital as regards		
	measurement		64
<b>Figure</b> (10):	Comparison between all visits of study		
	Bolaque hospital as regards measurement		65
Figure (11):	Comparison between all visits of the		00
rigure (11):	group in Bolaque hospital as regards d	•	
	caloric intake and sodium		69
Figure (12):	Comparison between the 3 visits		
	Badrashine hospital as regards STAM		82
<b>Figure (13):</b>	Comparison between all visits of the	ne study	
	group in El-Badrashine hospital as	_	
	weight measurement		84
<b>Figure (14):</b>	Comparison between all visits of the stu	<i>v</i>	
	in El-Badrashine hospital as regard	_	0.5
	measurement		გე

#### Introduction

The American Society for Parenteral and Enteral Nutrition (ASPEN) workgroup defined pediatric malnutrition (under-nutrition) as "an imbalance between nutrient requirement and intake, resulting in cumulative deficits of energy, protein, or micronutrients that may negatively affect growth, development, and other relevant outcomes (*Mehta et al.*, 2013).

The need to have a validated pediatric nutrition screening tool (PNST) is becoming increasingly apparent, and this is further supported by national and international guidelines (*Brotherton et al.*, 2011).

In the absence of a gold standard, researchers have taken different approaches to tackle identification and recognition of 'at-risk' children, including delineation of the problem by developing (PNSTs). Examples include the 'Pediatric Nutritional Risk Score' (PNRS) and the 'Subjective Global Nutritional Assessment Tool (*Secker and Jeejeebhoy*, 2007).

Although some studies considered that the pediatric nutritional risk score (PNRS) is the most suitable for clinical practice since the results of high sensitivity and specificity in PNRS compared with Subjective global assessment (SGA) (*Lestari et al.*, 2017).



However, both of these tools are relatively complicated and too time-consuming for ready use in screening (Hulst et al., 2010).

In the UK, the screening tool for the assessment of malnutrition in pediatrics (STAMP) was established in 2004 and evaluated in 2007. To evaluate the quick and easy-to-use NSTs for hospitalized children, three factors were considered: diagnosis, nutritional intake, as well as weight and height. After evaluating these factors, the sum was classified into low, medium, and high risk, and the STAMP also suggested that a care plan in the last step (McCarthy et al., 2012).

Screening Tool for the Assessment of Malnutrition in Pediatrics (STAMP©) offers a valid screening tool for the detection of malnutrition and malnutrition risk in a pediatric primary health care setting. Furthermore, the use of STAMP in a primary health care clinic raised clinician's awareness of nutritional status as indicated by an increase in anthropometric measurements and the documentation of nutritional status following study implementation (*Rub et al.*, 2016).

Previously, management of sever acute malnutrition (SAM) was limited to inpatient care in health facilities and therapeutic feeding centers, but currently, community based management of acute malnutrition is recommended as the standard management for SAM cases. Community based management of acute malnutrition has both a community based outpatient therapeutic feeding program (OTP) uncomplicated cases and facility based inpatient care for complicated cases (WHO, 2013).