THE POSSIBLE INFLUENCE OF MATERNAL NUTRITION-RELATED KNOWLEDGE AND PRACTICES ON NUTRITIONAL STATUS OF THEIR PRE-SCHOLAR CHILDREN

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بسم الله الرحمن الرحيم

[وأنزل اللـه عليـك الكتــاب
والحكمة وعَلَّمَكَ مَا لَمْ تَكُن تَعْلَمُ
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صدق الله العظيم

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List of Abbreviations

APD : American Academy of Pediatric Dentistry

AAP: American Academy of Pediatrics

BMI: Body Mass Index

EDHS: Egypt Demographic and Health Survey

FAO: Food and Agriculture Organization

UNICEF: United Nations Children's Emergency Fund

NutriSTEP: Nutrition Screening Tool for Every Preschooler

RDAs: Recommended Dietary Allowances

RNI: recommended nutrient intake

USDA:U.S. Department of Agriculture

USDA and HHS : U.S. Department of Agriculture and U.S. Department of Health and Human Services

WHO : World Health Organization

Terms Of Comprehensive feeding practices

Restriction: Limiting or regulating the food consumed by the child

Pressure to eat: Urging the child to eat more, for example saying "Just two more bites"

Monitoring: Keeping track of unhealthy foods (sweets, snack food, high-fat food and/or sugary drinks) that the child consumes

Food as a reward: Giving or withholding food in response to good or bad behaviour from the child.

Healthy eating guidance: Modelling healthy eating, teaching about nutrition and encouraging balance and variety in the diet of the child.

Emotion regulation: Feeding a child in response to their emotions, such as fussiness or boredom.

Modelling: Demonstrating healthy eating in front of the child

Teaching about Nutrition :Talking to the child about why food is good or bad for them.

Encourage balance and variety: Encouraging the child to eat a balanced diet with a wide variety of foods.

Involvement: Involving the child in the planning, preparation and purchasing of food.

Restriction for weight control: Limiting food that the child eats in an attempt to control their weight.

Restriction for health: Limiting certain foods that the child eats to ensure a healthier diet.

Environment : Making mostly healthy foods available in the home**.**

Acceptable Macronutrient distribution range (aMdr): Range of intake for a particular energy source that is associated with reduced risk of chronic disease while providing intakes of essential nutrients. An intake outside of the AMDR carries the potential of increased risk of chronic diseases and/or insufficient intakes of essential nutrients.

Adequate intake (ai):A recommended average daily nutrient intake level based on observed or experimentally determined approximations or estimates of mean nutrient intake by a group (or groups) of apparently healthy people. This is used when the Recommended Dietary Allowance cannot be determined

Counselling: Giving advice, that it is opinion or instruction given in directing the judgment or conduct of another'. In the clinical context counselling can be defined as 'the therapeutic process of helping a patient to explore the nature of his or her problem in such a way that he or she determines his or her decisions about what to do, without direct advice or reassurance from the counsellor.

Dawdling To take more time than necessary.e.g.dawdled through breakfast.

Dietary reference intakes (DRI):A set of nutrient-based reference values that expand upon and replace the former Recommended Dietary Allowances (RDAs) in the United States and the Recommended Nutrient Intakes (RNIs) in Canada.

Estimated average requirement (EAR): The average daily nutrient intake level estimated to meet the requirement of half the healthy individuals in a particular life stage and gender group.

Health Promotion: Health promotion is the science and art of helping people change their lifestyle to move toward a state of optimal health.

Mid-upper arm circumference:(**MUAC)** is the circumference of the left upper arm measured in centimeters. The point is between the tip of the shoulder and the elbow. The use of MUAC and the Arm circumference is measured with special circumference measuring tapes.

Monounsaturated fatty acids: **(MUFAs)** have one double bond. Plant sources that are rich in MUFAs include nuts and vegetable oils that are liquid at room temperature (e.g., canola oil, olive oil, and high oleic safflower and sunflower oils).

NutriSTEP : Nutrition Screening Tool for Every Preschooler .

Ounce-equivalent (oz-eq):The amount of a food product that is considered equal to 1 ounce from the grain group or the protein foods group. An oz-eq for some foods may be less than a measured ounce if the food is concentrated or low in water content (nuts, peanut butter, dried meats, or flour), more than an ounce if the food contains a large amount of water (cooked beans, cooked rice, or cooked pasta).

Polyunsaturated fatty acids: Polyunsaturated fatty acids (PUFAs) have two or more double bonds and may be of two types, based on the position of the first double bond.

Portion size: The amount of a food served or consumed in one eating occasion. A portion is not a standardized amount, and the amount considered to be a portion is subjective and varies.

Recommended dietary allowance (RDA):The average dietary intake level that is sufficient to meet the nutrient requirement of nearly all (97 to 98%) healthy individuals in a particular life stage and gender group.

Refined grains: Grains and grain products missing the bran, germ, and/or endosperm; any grain product that is not a whole grain. Many refined grains are low in fiber and enriched with thiamin, riboflavin, niacin, and iron, and fortified with folic acid .

Sampling - The technique of selecting a representative part of the population for the purpose of determining characteristics of the whole population

Sample: A part or subset of the population used to supply information about the whole population.

Sample size: The number of households or persons selected to be included in a sample or survey.

serving size:A standardized amount of a food, such as a cup or an ounce, used in providing information about a food within a food group, such as in dietary guidance. Serving size on the Nutrition Facts label is determined based on the Reference Amounts

Snack:a small amount of food eaten between meals**.** Eating good snacks like roasted groundnuts, oilseeds, dried fruits, coconut flesh and dates is a good way of improving a diet

Standard deviation :A statistical measure of dispersion away from the mean; the square root of the variance.

Whole grains: Grains and grain products made from the entire grain seed, usually called the kernel, which consists of the bran, germ, and endosperm. If the kernel has been cracked, crushed, or flaked, it must retain nearly the same relative proportions of bran, germ, and endosperm as the original grain in order to be called whole grain. Many, but not all, whole grains are also a source of dietary fiber.

Z-score :A statistical measure of the distance, in units of standard deviations, of a value from the mean; the standardized value for an item based on the mean and standard deviation of a data set; a standardized value computed by subtracting the mean from the data value x and then dividing the results by the standard deviation.

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INTRODUCTION

Malnutrition is one of the main problems in developing countries and some areas in developed countries **(Gregory et al, 2010).** It affects physical growth, morbidity, mortality, cognitive development, reproduction, and physical work capacity, and it consequently impacts on human performance, health and survival and an underlying factor in many diseases in children (**Mahgoub et al, 2006**).

Magnitude of the problem

Globally

In 2010, it was estimated that 171 million children (167 million in developing countries) were stunted. Stunting decreased from 39.7% in 1990 to 26.7 % in 2010. This trend is expected to reach 21.8% or 142 million, in 2020 (**De Onis et al, 2012).** Overweight and obese children were estimated to be 43 million (35 million in developing countries); 92 million were at risk of overweight. The worldwide prevalence of childhood overweight and obesity increased from 4.2% in 1990 to 6.7% in 2010.This trend is expected to reach 9.1% or 60 million, in 2020 (**De Onis, et al 2010)**.

Eastern Mediterranean Region (EMR)

The overall proportion of underweight children under 5 years of age increased in the EMR from 14% in 1990 to 17% in 2004 **(Unicef, 2006).** Over the years, significant progress has been made in improving the health and nutrition status of the population of the EMR.Six countries in this region (Djibouti, Jordan, occupied Palestinian territory, Oman,

Syrian Arab Republic and Tunisia) are on track to meet the Millennium Development Goals (MDGs) targeting a reduction in the proportion of children under 5 years of age who are underweight **(Bagchi, 2008).**

Egypt

In Egypt, the latest Demographic and Health Survey (DHS) in 2014 acknowledged that one in five children under age five are stunted .Urban children slightly more stunted than rural children (23 percent and 21 percent, respectively). The percentage stunted is higher in urban Upper Egypt (30 percent) than in other areas **(El-Zanaty and Associates, 2014)**.

Percentage of children considered to be overweight or obese, i.e., weight-for-height was more than 2 standard deviations from the median of the WHO reference population was 15 percent. Underweight children under age five was 6 percent. **Fig 1 (annex 1)** examines the trends in nutrition status during the period between the 2000 and 2014 EDHS There is reduction in the percentage stunted compared to the levels observed in the earlier EDHS surveys, particularly the 2008 Egypt DHS. However, the proportion of children who are wasted has increased gradually over time, from 3 percent in 2000 to 8 percent in 2014 **(El-Zanaty and Associates, 2014).**

Since 2005, Egypt has faced increased levels of food insecurity, combined with rising poverty rates, food prices and several food, fuel and financial crises, including the avian influenza epidemic in Lower Egypt. These successive crises resulted in reduced household access to food and purchasing power **(World Food Programme, 2013**) .

The total economic cost of children undernutrition is estimated 20.3 billion Egyptian pounds (3.7 billion US dollars) or 1.9% of the gross

domestic product (**World Food Programme, 2013).** Egypt is experiencing the double burden of malnutrition, with rising prevalence of stunting, accompanied by rising levels of overweight and obesity in children **(El-Zanaty and Way, 2009).** Therefore, assessing the factors attributing to this malnutrition is central to reducing and preventing morbidities and mortalities **(Sufiyan et al., 2012) .**