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Tackling Stunting and Anemia in Egypt

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2018

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List of acronyms and abbreviations

ANC: Antenatal Care
BF: Breast Feeding
DALYs: Disability Adjusted Life-Years
CDA: Community Development Association
CSR: Corporate Social Responsibility
EBF: Exclusive Breastfeeding
EDHS: Egypt Demographic and Health Survey
EGP: Egyptian Pound
ENCRO: Egypt National Child Rights Observatory
FCU: Family Care Unit
GDP: Gross Domestic Product
HE: Health Education
IDSC: Information and Decision Support Center
IYCF: Infant and Young Child Feeding Practices
MOHP: Ministry of Health and Population
NCCM: National Council for Childhood and Motherhood
NGOs: Non-governmental Organizations
SDGs: Sustainable Development Goals
UNICEF: United Nations International Children's Emergency Fund
USAID: United States Agency for International Development
WFP: World Food Program
WHO: World Health Organization
WTO: World Trade Organization

Executive summary

Stunting and anemia rates in children between the age of 0-24 months (0-2 years) have been two of the most persistent public health problems facing the Egyptian society and government. Nationwide, about one in five children under age 5 (21%) is stunted or too short for his or her age. Egypt ranked 11 among the 14 countries with the largest number of stunted children all over the world.

Various intertwined factors cause stunting and anemia among Egyptian children from the age of 0-23 months (first 1000 days). One of the main reasons is the lack of health awareness and education about the appropriate Infant and Young Child Feeding (IYCF) practices. This includes the knowledge about the importance of breastfeeding, the initiation of breastfeeding, exclusive breastfeeding and complementary feeding practices. Moreover, there are many negative cultural perceptions that exacerbate the issue and create negative influence on the surrounding environment. Unfortunately, there is no particular national policy to tackle anemia and stunting problems, even the current nutrition policy lacks the effective framework to tackle the lack of health awareness and education and wrong cultural perceptions about IYCF. As a result, only 23 percent of Egyptian children are being fed according to the IYCF minimum standards for diet diversity and meal frequency.

Based on the researchers analysis of the problem, current policies, and on the opportunities Egypt has, this policy paper targets the Egyptian Ministry of Health and Population and recommends reformulating a specific nutrition policy to tackle stunting and anemia as well providing awareness and education about the appropriate IYCF and to give high priority to strengthening the health provision of the required micronutrients in family care units (FCU), as well as creating supportive and enabling environments for the caregivers to follow the appropriate practices.

i Introduction

Childhood stunting and anemia are the most significant hindrances to human development. Nationwide, about one in five children under age 5 (21%) is stunted or too short for his or her age (EDHS. 2014). Poor nutrition among children can lead to lifelong consequences both for the individual and also for the country. A child is considered stunted when he/she is unable to grow in height according to his/her full potential (Kavle, 2014, p. 6). According to the WHO, "children are defined as stunted if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median" (WTO, 2018). Stunting occurs over the initial 0-23 months/ first 1000 days of a child's life. Most stunted children also suffer from anemia, which is defined as the lack of red blood cells mass (blood hemoglobin concentration) or their oxygen-carrying capacity is insufficient to meet a child's physiologic needs (WHO, 2011). This problem affects negatively many nations. Egypt is one of the countries having high rates of stunting and anemia.

The economic cost of malnutrition in Egypt was 20.3 billion Egyptian pounds (EGP) in 2009 as a result of child under nutrition due to its strong negative impact on learning, education and future productivity (The Cost of Hunger in Egypt, 2012). Alongside growing poverty and food insecurity, stunting rates due to under nutrition among children under five have increased in the last decade to reach 21.4 % in 2014, accompanied by the growing rates of anemia that were estimated at 27.2 % in 2014, according to the Demographic Health Survey (EDHS, 2014).

In the next sections, the study provides a background about stunting and anemia in Egypt, including the prevalence of stunting and anemia, followed by the methodology for collecting and processing data, then the problem statement section including the main causes and consequences, and the previous and current policies. Finally, the paper suggests many policy options to tackle the problem.

ii Problem Background

Stunting and anemia rates in children between the age of 0-24 months (0-2 years) have been two of the most persistent public health problems facing the Egyptian society and government, with approximately one-third of children under the age of five affected (Kavle, 2014, p. 1). Egypt ranked 11 among the 14 countries with the largest number of stunted children all over the world (Taher, 2014). Handoussa (2010) and Kavle (2014), highlight that the spur in the rates of stunting, especially in Lower Egypt, between the periods of 2006 to 2008, was associated with the avian influenza epidemic outbreak, which hampered household consumption of eggs and poultry among pregnant mothers and young infants. The height-for-age data reflected in the 2008 Egypt Demographic and Health Surveys (EDHS) illustrates that around 28.9 percent of Egyptian children under the age of five were stunted in 2008, and around 14 percent were considered as severely stunted (UNICEF, 2010, p.2). Accordingly, this means that around three out of ten children under the age of five were stunted and one out of ten is severally stunted (UNICEF, 2010, P.2).

Since 2008 there has been a gradual decline in the stunting rates (21%). Nevertheless, Egypt still lags behind when compared against the international WHO standards for stunting and anemia (EDHS, 2014: WHO, 2018). The 2014 EDHS report indicated that, nationwide, stunting had decreased to twenty-one percent. Nevertheless, this is still a relatively high rate of stunting; around one in five children under the age of five years old is stunted. Moreover, stunting is a prolonged problem, as figure 1 demonstrates, nationwide stunting has not decreased below twenty percent from 2000 until 2014 (EDHS, 2014) Also, the prevalence of stunting reached 37 percent in parts of Upper Egypt (WFP, 2018) and according to the 2014 EDHS report, children in urban areas are slightly more likely to be stunted than rural children: 23% and 20.7%, respectively (Egypt DHS, 2014). Moreover, “other studies conducted by the World Food Program (WFP) in collaboration with Information and Decision Support Center

(IDSC) among the poorest villages revealed a high prevalence of stunting (31%) in 2014 and estimated annual costs of child under nutrition at 20.3 billion Egyptian pounds (EGP) or 1.9% of GDP." (Taher, 2014, p.3).

Figure 1: EDHS Stunting Percentage of Children under 5 from 2000-2014 retrieved from (https://dhsprogram.com/pubs/pdf/OF29/OF29.pdf)

By measuring the blood hemoglobin levels to test anemia, the 2014 EDHS concluded that one-quarter of children age six to fifty-nine months have moderate anemia (27%) as demonstrated in figure 2. Anemia, especially effects rural areas and frontier governorates (WFP, 2018). Anemia in children is most common among children age 9-11 months (49%) (WFP, 2018). Moreover, anemia is also a prevalent problem among Egyptian mothers, one-quarter of ever-married women are anemic, although this shows a significant decline from the 2005 EDHS report where anemia in ever-married women stood at thirty-nine percent. (EDHS, 2014, p. 11)

About One in Four Women and Children Have Anemia
Percent of children age 6-59 months and women age 15-49 years with anemia

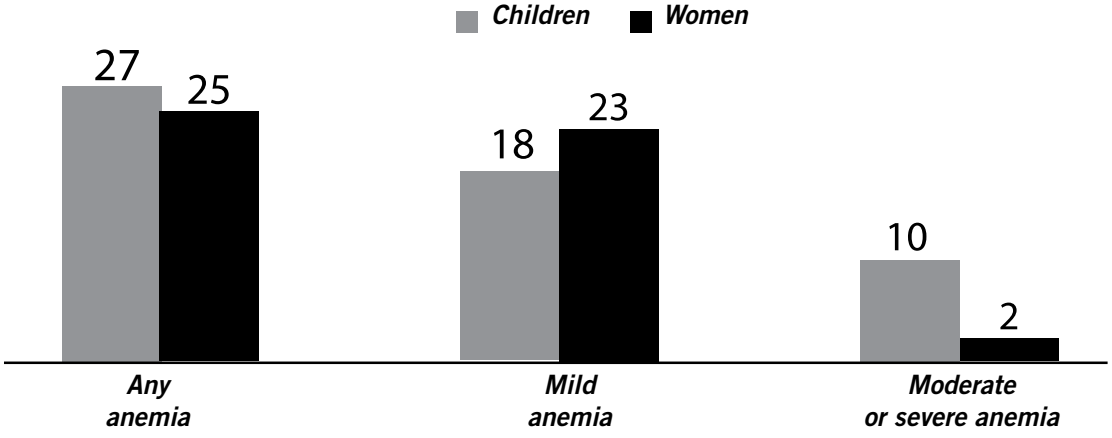


Figure 2: EDHS, 2014 Anemia Percentage of Children age 6-59 months and women from 15-49 (fertility years) retrieved from (https://dhsprogram.com/pubs/pdf/OF29/OF29.pdf)

Unfortunately, more recent data on stunting and anemia in Egypt is lacking.

However, some scholars predict an increase in the levels of anemia and stunting given the high inflation rate caused by the flotation of the Egyptian currency (WFP, 2018). It is also important to note that stunting in Egypt is a common problem affecting children from different income levels. "Among the poorest households, 24% of children under age 5 are stunted, very similar to the rate among the richest households—23%" (EDHS, 2014). Therefore, one can conclude that poverty is not the major factor behind the widespread stunting amongst the Egyptian society. However, unlike stunting, anemia varies depending on household wealth. Children from the poorest households are much more at risk than those living in the wealthiest households, 34% and 21% respectively. (EDHS, 2014).

The WHO Conceptual Framework for the Causes and Consequences of Stunting

Before looking at the causes and consequences of stunting in Egypt, it is important to refer to the WHO conceptual framework presented in Figure 3, on the causes and consequences of stunting. There are multiple intertwined causes that may lead to stunting in children, including but not limited to, child's under nutrition and poor eating habits (inadequate breastfeeding, ineffectiveness of the healthcare providers, and poor complementary food practices). There are also a number of household and family factors which include maternal stunting or under nutrition during pregnancy, and repeated exposure to infections (WTO, 2018).

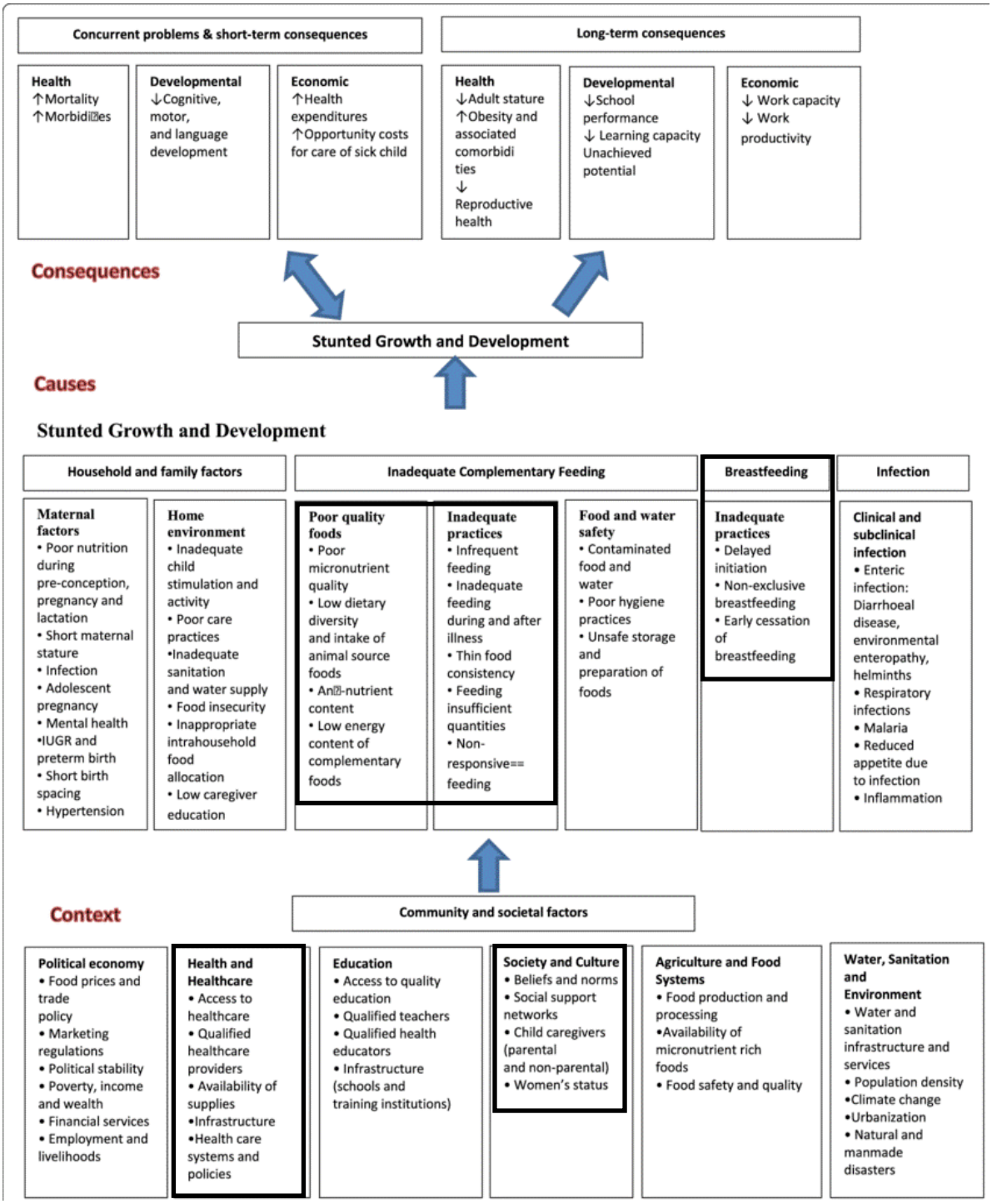


Figure 3: WHO conceptual framework on Childhood Stunting: Context, Causes, and Consequences.

iii. The methodology

- Literature review
- Semi structured interview with two main stakeholders

  1- Dr. Mona Hafez, the Head of the Primary Healthcare sector, Ministry of Health and Population, Egypt. (MOHP provides health services, policy makers, monitoring health systems)

2- Dr. Naglaa Arafaa, Nutrition program, UNICEF. (UNICEF provides policy consultancy, nutrition activities)

iv Problem Statement

The study argues that one of the main reasons for stunting and anemia in Egypt is the lack of health awareness and education about the appropriate Infant and Young Child Feeding (IYCF) practices. This includes the knowledge about the importance of breastfeeding, the initiation of breastfeeding, exclusive breastfeeding and complementary feeding practices. Moreover, there are many negative cultural perceptions that exasperate the issue and create a negative influence on the surrounding environment. In addition, inadequate health service provision to pregnant women and new mothers is oftentimes experienced.

A. Causes of Stunting and Anemia in Egypt

Various intertwined factors cause the prevalence of stunting and anemia among Egyptian children from the age of 0-23 months/ first 1000 days, such as, childhood under nutrition (due to lack of awareness and training among health care providers and household caregivers) and constant exposure to diseases (Mahmoud, 2016, P.1: Kavle, 2014, p.1: Tawfik, 2015). There is a general agreement among scholars however, that malnutrition and under nutrition is one of the main causes leading to the high levels of stunting and anemia among Egyptian children. Malnutrition is defined as "deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients" (WHO, 2016). The 2014 EDHS highlighted that very few Egyptian children are fed in compliance with the national and international health recommendations provided by the WHO (EDHS, 2014).

Malnutrition is a common problem that causes both anemia and stunting in child. It is also important to note that there is a link between anemia and stunting; anemic children are more likely to be stunted. Accordingly, this policy paper will focus primarily on exploring the reasons behind practices leading to malnutrition, which is the main factor leading to anemia and stunting. These reasons include lack of healthcare awareness among mothers, lack of food diversity and inadequate complementary food practices, lack of an enabling environment, inadequate healthcare services, and lack of an effective policy framework designed specifically to tackle the problems of anemia and stunting.

1- Lack of Health Awareness among Mothers and Inappropriate Feeding Practices:

One of the main reasons behind stunting and anemia in Egypt is lack of awareness among mothers about the importance of the proper nutrition during pregnancy and about their health, in general. Most of the irreversible damage caused by malnutrition in Egypt happens during pregnancy and the first 24 months of life (Handoussa, 2010). In addition, Mothers do not have the appropriate knowledge about what is appropriate for a child to eat during his/her first 24 months, and about Infant and Young Child Feeding practices (IYCF).

a- Lack of awareness about maternal health and prenatal period

Based on an interview conducted with Child Survival and Development Officer in UNICEF Cairo, it was highlighted that female health during pregnancy is of vital importance to the health of the child; a stunted mother has a higher risk of having a stunted child. Likewise, a mother that is anemic risks having a child that is anemic, as well. Therefore, it is crucial that mothers receive the appropriate vitamins and advice needed both during the prenatal period and up to two years after the postpartum period to follow up on both the mother's and children's health. However, many mothers in Egypt lack the necessary vitamin intakes needed during their pregnancy, either due to the fact that they cannot afford buying supplements and vitamins and or/ they are not aware of the necessary food they need to consume during the period.

b- Inappropriate feeding practices

Poor Infant and Young Child Feeding practices (IYCF) include inappropriate breastfeeding practices, lack of food diversity and inadequate complementary food practices causing malnutrition, which is a primary cause of stunting and anemia among children.

Breastfeeding

Breastfeeding (BF) has both short-term and long-term benefits for infants; "Exclusive breastfeeding (EBF) is recommended up to 6 months of age, with continued BF along with appropriate complementary food up to two years of age or beyond" (El Shafei & Labib 2014).

Breastfeeding is widely practiced in both Upper and Lower Egypt (96%), both women and grandmother (caretakers) are aware of the overall health benefits of breastfeeding for their children (Kavle, 2014). Nevertheless, wrong breastfeeding practices were associated with lack of breastfeeding initiation, exclusive breastfeeding, and frequency of breastfeeding.

- Breastfeeding Initiation

Breastfeeding initiation within the first hour of the child's life, is one of the indicators of adequacy of care, however, this is often delayed in mothers due to prelacteal feeding including herbal drinks (Kavle, 2014). Moreover, based on a study conducted to examine the breastfeeding practices in women in rural Egypt only 32.4% of women initiated breastfeeding within the first hour of life (El Shafei & Labib, 2014).

- Exclusive Breastfeeding

According to the WHO, a child should be exclusively breastfed for the first six months of life. However, Egyptian mothers and grandmothers often introduce 'light' food such as yogurt, biscuits, etc. too early, often resulting in reduced rates of exclusive breastfeeding, which is essential for the child's growth (Kavle, 2014). The El Shafei & Labib, (2014) study also revealed that 29.9% of mothers

exclusively breastfed their infants for 6 months after birth. Moreover, it is also evident that exclusive breastfeeding declines with age from 71% of infants in the first month of life to only 13% at age 4-5 months.

According to EDHS there has been a decline of exclusive breastfeeding rates at 4 to 5 months of age from 34% (2005) to 29% (2008) down to 13 % (2014). Only 40% of children are exclusively breastfed 0-5 months.

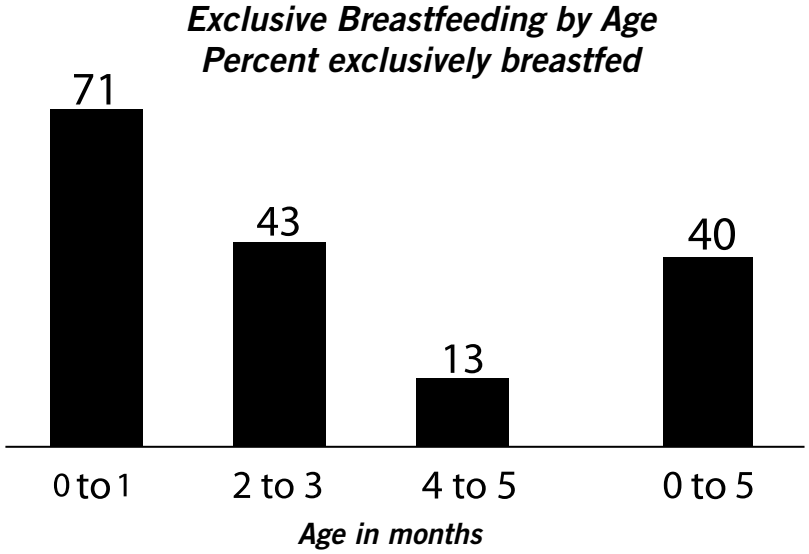


Figure 5: EDHS 2014 data for Exclusive breastfeeding in Egypt

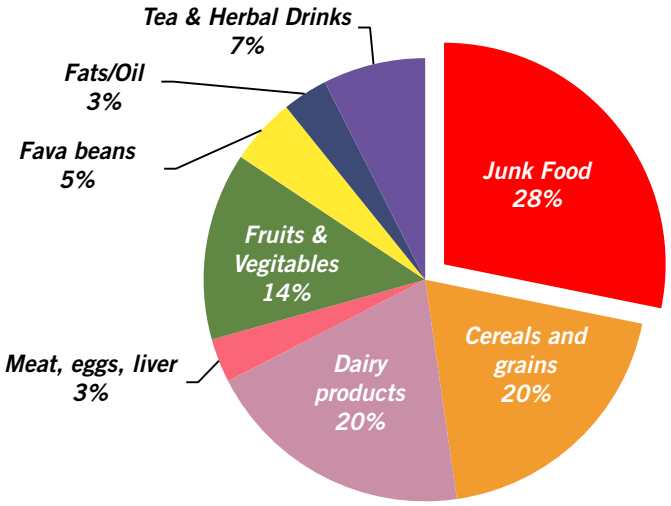
- Frequency of Breastfeeding

A comprehensive study conducted by Kavle (2014), also indicated that Egyptian mothers did not breastfeed their children frequently enough (upon demand) or the duration of breastfeeding is often too short.

2- Lack of Food Diversity and Inadequate Complementary Food Practices

The type of complementary food many children receive after 6 months lacks diversity and is not nutritious. According to Kavle (2014), "less than one in four children age 6-23 months is fed the amount and diversity of foods recommended by infant and young child feeding practices." Also, lack of dietary diversity is more prominent in Upper Egypt than Lower Egypt. In urban governorates, 19 percent of the population had poor dietary diversity compared to 56 percent in Upper Egypt (WFP, 2018)." For instance, children at 6 months of age in both Upper and Lower Egypt are not frequently provided with sufficient amounts of animal-source foods/protein in their dietary consumption, like grain, fruits and vegetables (Taher, 2014). Instead, children would often consume small and infrequent amounts of light food for the first year of life. Moreover, children at the age of 6 months are often frequently provided with herbal-tea, black tea (especially in Upper Egypt), canned juice and junk food, especially from 18-23 months old, which has a negative impact on the child's growth. "The 2014 EDHS found that less than a third of children under the age of 2 had eaten any meat, fish, or poultry" (Kavle, 2014). Furthermore, there is also a high

dependence on black or herbal tea and juices, which suppress the children's appetite for solid food. It is important to note also, that black tea often hinders the absorption of iron which is a major cause for anemia (Kavle, 2014).



Definitions and Specifications: ***Cereals and Grains:*** bread, rice, macaroni, rice pudding, wheat porridge made with milk and sugar, tubers (potato, sweet potato, and taro). ***Dairy Products:*** fresh milk, milk powder, cheese (Kare es, processed white cheese), yogurt. ***Junk Foods and Sugary Drinks:1) Ready-made snacks:*** Locally made potato chips (caratee), stor-bought potato chips, store- bought small sponge cakes;2) ***Biscuits:*** sugary cookies; 3) ***Sweets & Candy; 4) Sugary Drinks:*** fizzy drinks, sodas, and store -bought juices.

Figure6: USAID 2014 Complementary food frequency and composition in Egypt. Retrieved from (https://www.mchip.net/sites/default/files/Stunting%20Study%20Junk%20Food%20Brief%20Egypt_English.pdf)

3- Negative influence of surrounding environment and social norms

"Social norms refer to what individuals perceive as a standard or expected behavior among the different groups they belong to." According to UNICEF report (2010), mothers often face pressure from their husbands, family members, friends and neighbors to follow the social norm of feeding practices perceived to be better. Unfortunately, most of these cultural perceptions and beliefs that mothers, other caretakers (fathers/ grandparents) and health providers have about the right IYCF are incorrect. According to a survey conducted by Kavle (2014), all stakeholders in both Upper and Lower Egypt did not fully comprehend the causes of poor growth. They often perceive stunting as something hereditary and not associated with poor diet. Another study on maternal breastfeeding practices in Upper Egypt revealed that the main source of knowledge about breastfeeding practices is from the grandmother, representing 42%, followed by relatives and media by 19%, while medical staff represents only 17 % (Ahmed et all, 2014).

In addition, lack of child spacing and family planning (Handoussa, H. 2010) does not give the mother the chance to properly take care of her child. Moreover, according to new civil service law number 81/2016, the mother has only 4 month's maternity leave. Working mothers often cite their inability to exclusively breastfeed their children in a consistent manner due to time constraints, work pressures and lack of prenatal care. Therefore, it can be seen that the surrounding environment and social norms play an important role in poor feeding practices which further lead to stunting and anemia.

4- Inadequate healthcare services

According to a study conducted by UNICEF, one of the important bottlenecks in improving maternal and child health is unavailability of required micronutrients in family care units (FCU). In addition, lack of a good workforce in FCU and lack of knowledge about IYCF, also contribute.

Poor supply chain management

One of the reasons contributing to the deteriorating health of mothers during the prenatal period and the first two years postpartum are the lack of a healthy diet and supplements for breastfeeding mothers (Handoussa, 2010). This is mainly due to the expensive prices of supplements and inconsistent supply of subsidized vitamins to FCU. Based on an interview with a Child Survival and Development Officer in UNICEF Cairo, stock-outs of iron/folate, vitamin A tablets, and other supplements required for child and mother are common in all districts which may last for many months. Theses stock-outs are due to poor supply chain management, including product selection, forecasting, ordering, inventory management, and dispensing management. Moreover, absence of a health management information system and computerization of the system makes networking between different levels within health systems (facility level, district, directorate and central) very difficult, leading to poor inventory management.

Ineffective healthcare providers

Shafei & Labib (2014), Handoussa, (2010) and Kavle, (2014), concluded that lack of knowledge and education about the right practices of breastfeeding which is not provided by health providers is one of the main reasons behind the wrong breastfeeding practices in women. In addition, some healthcare providers would give inappropriate advices to mothers. For example, they advise mothers to give their infants herbal-tea to help them sleep and cry less. Nevertheless, this in turn reduces the infant's appetite for breast milk, which is necessary for healthy linear growth (Kavle, 2014). Or they may easily prescribe formula milk when mothers face lactation problems, instead of advising mothers about how to feed her infant and how to enhance her own health. Seedhom (2014) conducted a study about stunting in Minya and concluded that lack of awareness and education from the health care units among mothers is one of the most important factors behind stunting. These inadequate practices from healthcare providers may be due to a lack of knowledge about IYCF or because they are not incentivized enough to spend more time with mothers to give them the right and sufficient information about IYCF.

B. The significance of the problem of stunting and anemia

Stunting and anemia are pressing problems facing the Egyptian society, they have both short-term and long-term negative consequences on both the individuals and the society as a whole.

1- On the Individual Level

Stunting and anemia can negatively affect children's cognitive functions and abilities to learn and comprehend information and can lead to slower language development abilities. This in turn negatively impacts on the educability of the child and increases their chances of dropping out, which hampers their chances of getting a high paying job (Handoussa, 2010). Stunting can also reduce the individual income and life earning by 10%. (Kavle, 2014, p.7) Likewise, childhood anemia in Egypt is associated with a 2.5% drop in adult wages (Handoussa, 2010). Furthermore, a stunted child may also be considered as a burden on his/her family due to the extra health costs associated with his/her general well-being, which at times could put some strain on the low-income family expenditure. Moreover, stunting and anemia resulting from malnutrition can also lead to higher child mortality and morbidity rates. "Stunting contributes to 14.5% of annual deaths among under-five children, and 12.6% of disability adjusted life-years (DALYs). Stunted mothers have higher child mortality risks compared to healthy mothers" (Kavle, 2014). Stunting can also lead to shorter stature of individuals and lower reproductive health.

2- On the society level

Stunting and anemia are associated with lower productivity levels of the workforce, which in turn reduces the country's overall Gross Domestic Product (GDP) and ability to achieve sustained economic and social development (Kavle, 2015, p. 7). "Stunting reduces GDP by 2-3% in low and middle-income countries" (Kavle, 2014, p.6). Stunting and Anemia also increase the economic burden on the country's health care system (Handoussa, 2010). "Annually, World Bank (2009) and UNICEF (2004) figures suggest that Egypt loses over $814 million in GDP to vitamin and mineral deficiencies, while the cost of scaling up core micronutrient nutrition interventions is estimated at $55 million per year" (Handoussa, 2010: World Bank, 2010). The study estimates the economic and social cost of child under nutrition at 20.3 billion EGP. Without measures to combat and eliminate under nutrition, this cost is expected to increase by about 32% by 2025 to reach to 26.8 billion EGP (cost of hunger in Egypt,2012)

C. Opportunities in the context of legal commitments

Egypt's commitment to protect children is reflected in a number of international initiatives. To mention a few, Egypt was one of the primary states to ratify the Convention on the Rights of the Child. Egypt also participated actively in the World Summit for Children 1990. In addition, Egypt ratified its constitution with the emphasis on the rights of child, established many entities for the welfare of the child, and emphasized in Vision 2030 on reducing the rates of stunting and anemia.

1. The 2014 Egyptian constitution

The Egyptian constitution delineates the responsibilities of the Egyptian government towards women and children in a number of constitutional articles including

Article 11 pertaining to the place of women, motherhood and childhood. This article highlights that the state is responsible for ensuring care and protection for motherhood and childhood. Also, Article 18 dictates that each citizen has the right to lead a healthy life and access comprehensive healthcare. Moreover, Article 79 states that each citizen has the right to health, sufficient amounts of food and clean water and that the state shall provide food resources to all citizens. Finally, Article 80 of the Egyptian constitution states that the government is obliged to ensure children are provided with their needs. Children have the right to have access to free compulsory vaccinations, health and family care or an alternative, basic nutrition. (Ministry of International Cooperation, 2016)

2 .The Egyptian governmental entities responsible for the welfare of children

National Council for Childhood and Motherhood (NCCM) was established in 1998. It is responsible for planning, engaging in policy-making, monitoring and coordinating projects and activities pertaining to the protection and development of children and mothers (NCCM, 2018). The Egypt National Child Rights Observatory (ENCRO)'s main responsibility is to monitor the situation of children in Egypt and to track the national budget allocated and expenditures performed for them (ENCRO, 2018).

3. Egypt's Vision 2030

In 2015, the United Nations launched the global 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Egypt has been an active participant in the negotiations and preparation of this Agenda, which aims, among many other things, to promote good health and halt malnutrition and all forms of hunger by 2030. This would be attainable by ensuring that all people, including mothers and children, have access to sufficient and nutritious food (Ministry of International Cooperation, 2016).

According to the Ministry of International Cooperation (2016), the Egyptian government is highly committed to the effective implementation of the SDGs. Accordingly, it announced its strategy for sustainable development – "Egypt's Vision 2030" – which "serves as the national umbrella through which the SDGs will be implemented in Egypt. The strategy reflects the priorities of Egyptians for a better future for them and for next generations, maximizes the benefits of diversified resources and explores untapped opportunities" (Ministry of International Cooperation, 2016, P. 14). Different stakeholders are responsible for the implementation process of this strategy, namely, the Egyptian executive branch, the private sector, civil society organizations, and international development organizations.

Figure 2 reflects the Ministry of Health and Population Strategic objectives to be achieved by 2030. The first objective reflects the interest of the Ministry of Health and Planning in raising general awareness about various health issues, which includes stunting and anemia, and taking preventive measures to avoid the initiation of these problems.

Improving Health Standards to Advance Poverty Reduction

Good health and well-being are one of the main pillars of a strong society and an inherent human right. The relationship between poverty and ill-health is clear and supported by international evidence. Therefore, Improving health standards is a critical step towards achieving poverty eradication. Egypt's Constitution affirmed the universal right to healthcare, where Article 18 states that each citizen has the right to

enjoy a healthy life and to receive comprehensive healthcare in line with quality standards. The Constitution also declares that the State shall allocate percentage of GDP, not less than 3 percent, on health, which is twice the current governmental expenditure on the health sector. The Ministry of Health and Population has defined strategic objectives in the area of health to be achieved by 2030, which primarily focus on:

1- The improvement of the health of citizens within a framework of justice and equity: The objective is to have all the factors affecting the health of Egyptians including social factors and general awareness. So the Ministry of Health and Population focuses on the provision and enhancement of primary healthcare through awareness and preventive measures.

2- Achieve universal healthcare coverage for all Egyptians and ensure high quality services: The objective includes three elements of healthcare service delivery including financial burden, accessibility, and quality. However, this provision of quality healthcare service requires the increase of healthcare expenditure, the contribution of different entities, and the accessibility of these financial resources.

3- Improve health sector governance: The objective is to ensure the availability of accurate data, improvement of efficiency, accountability, transparency and resource management of the health sector.

Box 1: The Ministry of Health and Population Strategic objectives to be achieved by 2030 Retrieved from (https://sustainabledevelopment.un.org/content/documents/10738egypt.pdf).

Moreover, Egypt's vision 2030 aims to reduce stunting in children from 20% in 2014 to 10% in 2030, and to reduce anemia rates from 27% in 2014 to 15% in 2030 as demonstrated in figure 2.1 (Egypt's vision 2030, 2017). However, the Egyptian government notes that lack of awareness about health-related issues and right feeding practices, along with the absence of a Health Referral System, and weak health institutions may act as challenges to this vision (Egypt's vision 2030, 2017).

v Policy framework to tackle the problems of anemia and stunting

According to the analysis of current nutrition policy, one can conclude that the problem of stunting and anemia is given a low priority within the nutrition agenda, which results in the absence of effective and comprehensive policies to tackle these pressing issues. The following section intensively illustrates the current policies with their outcomes, successes, and failures.

Previous and current policies to address childhood stunting and anemia:

Previous policies:

Over the last few decades, Egypt has developed many nutrition policies and there was a remarkable effort directed to promote child's health. One of initiatives was, "Healthy Mother, Healthy Child" HMHC which took place from 1993 to 2009. This project undertook the task of reducing the risk factors for maternal and neonatal mortality and significantly improved outcomes in nine governorates of Upper Egypt; a region that traditionally has been associated with the worst health statistics (Egypt Healthy Mother/ Healthy child, 2009). This package of services combined the best practices with the promotion of behaviors and interventions that are essential for saving lives and reducing morbidity rates among women and children. One important integral component of the mentioned project was the Integrated Management of Childhood Illness (Elshafi & Labib, 2014).

In addition, the UNICEF Egypt Country Office, together with the Ministry of Health and Population (MOHP) have taken important steps towards strengthening the commitment to scaling up nutrition actions for the betterment of the health and well-being of the Egyptian population over the past years by developing a 10-year Food and Nutrition Policy and Strategy (2007 – 2017). Moreover, in 2017 the MoHP updated the National Nutrition policy and strategy of Egypt (2017-2025), and its operational multi-stakeholder plan. Within this strategy a road map was outlined and conceptual framework was developed for 'The first 1000 days model' leading to the implementation of a stunting prevention protocol of action at the primary health care level (Egyptian Landscape analysis report, 2012).

The outcomes of previous policies and strategies

Based on the Egyptian Nutrition Landscape Analysis Report that was conducted by UNICEF and published in 2012, the problem with the National Food and Nutrition Policy and Strategy (2007-2017) was that very few stakeholders acknowledged having seen the document, even though it is five years old. Moreover, the National Strategy is not in Arabic. The foregoing means that the strategy was not widely disseminated, and, therefore, may not have been widely used as the rallying document for nutrition actions in Egypt.

For those stakeholders who acknowledged seeing and reading the National Food and Nutrition Policy and Strategy (2007-2017), a mixed picture emerged regarding their perceptions about whether or not that strategy adequately incorporated all the key nutrition issues in Egypt.

Current policies

The Agenda for Action Policy Paper (2017-2025) was prepared last year for the main purpose of defining a feasible and practical 'road-map' that would transform government-led nutrition policies and programs and mobilize harmonized

multi-sector, as well as a multi-stakeholder, support to scaling-up of nutrition actions. Central to this process is the formulation of an updated National Nutrition Policy and Strategy which will be aligned to important national and global commitments, such as the Egypt Vision 2030, and the Sustainable Development Goals' "Agenda for action."

Success/failure of the current policy

What is good in the current policy is that it identifies the nutrition targets in line with the global nutrition targets and builds on the existing nutrition programming in the shorter term in order to yield measurable impact on nutrition, including actions that are focused around the 1,000 days approach. The right nutrition during this 1,000 day window has a profound impact on a child's ability to grow.

On the other hand, there are some drawbacks of this policy; the absence of a translated 'actionable version' of the Strategy in Arabic and the simple fact that the Strategy was never widely disseminated, hence not known by the key implementers and decision makers, nor the public in general. This document puts forward only a series of strategic recommendations to guide joint efforts by MoHP and other government institutions as well as UNICEF and other partners. There is no operational action plan with a timeline that will translate policy priorities and recommendations into actionable national nutrition interventions. There is need to provide further evidence on cost-effectiveness of different interventions, both in relationship to specific nutrition problems, as well as to the health and development of the Egyptian people. In addition, there is no reliable funding sources mentioned in the strategy.

Long-term sustainable development cannot happen without effectively combating under nutrition and the elimination of childhood stunting as key elements of the social development agenda. When a child is undernourished, the negative consequences follow that child for his/her entire life. These negative consequences also have grave effects on the economies where s/he lives, learns and works, as demonstrated in the below section.

vi Policy Options/Alternatives:

Based on the analysis of the problem and current policies, and on the opportunities Egypt has, the following policy options are suggested:

1. Developing a new policy to tackle anemia and stunting problems

There is a need to create a new nutrition policy to tackle anemia and stunting, although the current nutrition policy is comprehensive in terms of policy areas. However, there is no specific action on assigning responsibilities to tackle the stunting and anemia problem.

This strategy should have an operational plan with definite timeline. Targets also should be included and matched with the health sector's indicators in the Sustainable Development Strategy for Egypt Vision 2030.

The strategy should be developed by involving all the stakeholders and disseminated all nutrition actors. Specific budget or resources mobilization should be collected to implement the strategy and achieve targets which will reflect positively on the current and new generations.

Constraints:

This issue does not have the visibility and recognition it deserves at the national level. Part of that recognition could be through taking nutrition as a national security issue, so that it will be elevated to the highest policy- and decision-making levels (as in case of virus C eradication program).

2. Providing proper education and awareness for mothers to adopt IYCF Practices:

2.1. Mothers` education

Improving the IYCF practices as a policy option is based on promoting positive behavioral change so families can adopt appropriate breastfeeding and complementary feeding practices. Comprehensive education about BF during pregnancy is strongly needed to promote BF among mothers. "Virtually all mothers can, correctly, breastfeed, provided they have accurate information" (El Shafei & Labib, 2014). Studies also demonstrated that women are willing to change their breastfeeding practices for the better once they were more knowledgeable about the issue. "Health education (HE) during pregnancy was an important factor that may explain the finding of significant higher rates of Exclusive Breastfeeding among women who were exposed to HE during their ANC visits versus those who did not" (El Shafei & Labib 2014).

Moreover, USAID (2014), also concluded that women stopped feeding their children junk food once they were aware of its negative consequences on their children's health. According to the study conducted by the USAID (2014) on the introduction of junk food for children "Mothers and other household members said they had never received information on how to feed children or that junk foods were bad for their children and were glad to know that they could buy less-expensive foods and that young children should not receive tea."

Knowledge and skills about appropriate IYCF practices can be delivered to pregnant women and mothers through two main channels:

a- Facility-based IYCF counselling for pregnant women and mothers facilitated by health workers

According to the World Bank, the percentage of pregnant women receiving prenatal care in Egypt is around 90%. This high percentage can be effectively used to raise awareness to those women about women's dietary practices during pregnancy and lactation; breastfeeding practices; and complementary feeding practices for children under 2 years. Moreover, the national compulsory vaccinations are administered at time intervals 0, 2, 4, 6, 9, 18 and 24 months, and during vaccination children are supposed to go through growth monitoring to assess

their development. Therefore, this provides another chance in which health workers can directly contact mothers and advise them on the importance of breastfeeding and teach them the best feeding practices.

b- Counselling for pregnant women and mothers facilitated by community volunteers

Appropriate IYCF practices education and counseling do not need to be limited to health care providers, only. Community interventions can play an effective role in education and promotion of appropriate breastfeeding practices. Although delivering counseling and awareness sessions through community based associations may not be perceived as effective as one-to-one counseling delivered by health care providers, it has many other advantages that are needed to reach optimal IYCF. Conducting education and counseling at the community level creates a support group for mothers which influences their behavior. The presence of family members and other peers in the community level education and counseling gives support and motivation for mothers, as well as creates a platform where mothers can be more motivated to discuss their issues on reaching optimal practices.

The government can invest and support non-governmental organizations (NGOs) and Community Development Associations (CDAs) that work on health issues and develop partnerships with them to deliver community based awareness sessions and counseling about the appropriate IYCF. The Ministry of Health can connect NGOs and CDAs with health care units and train facilitators on breastfeeding counseling, breastfeeding practices and preparation of improved local recipes. This investment can provide continuous education and counseling and support the promotion of IYFC at the community level.

There is a need for comprehensive collaboration between the government, international organizations, and NGOs to create a plan to engage NGOs and CDAs in the promotion of IYFC practices and make the best use of the existing human resources in the community. By NGOs we mean all different NGOs in Egypt that are concerned with health and nutrition, particularly those that are active in service provision. We make a distinction between NGOs and CDAs since the latter have some special characteristics that are different than NGOs. CDAs have some different features that qualify them to be more engaged in a community based approach, and, therefore, they can serve as very effective channels to reach communities. First, they have been established by a governmental decree in the 1960's with the mandate to serve the population of local areas, so their work is restricted to only serve areas under their administrative coverage. In addition, they are neither fully voluntary nor independent and they include some government officials and have links with the local government and administration which can enable them to network easily with local administrators. They are spread all throughout Egypt and exist in every village. This gives them the advantage to engage with their communities and respond quickly to the area's needs.

It would be more productive if NGOs and CDAs are mobilized through networks and partnerships with health care units and facilities and work collectively on promoting IYCF practices. The education and promotion of IYCF within NGOs and CDAs can take various models such as: counseling sessions for pregnant women, mothers and the family on the breastfeeding and complementary feeding practices. Moreover, the promotion of IYCF practices can be integrated within other activities of NGOs and CDAs, such as education and cultural activities. NGOs and CDAs can use simple incentives to motivate the wider community to attend IYCF education and promotion events, such as creating competitions between various groups and delivering awards and recognitions to the winning team.

2.2. Awareness: the need for continuous feeding of information and reminders

Raising awareness and providing enough knowledge about the importance and right practices of breastfeeding doesn't guarantee its adoption. Those who used communication interventions to promote IYCF practices, such as using communication materials and education programs, achieved some improvement. However, they haven't produced the desired change in the practices of women on a wide scale. That suggests a need for more sustained behavioral change that goes beyond education. One of the new adopted tools in the policy making is 'Nudge' Unlike other traditional policy tools, nudge has been proposed as an effective, less costly way to influence behavior and outcomes (Association for Psychological Science, 2017). Given the low financial resources available to address stunting in Egypt, nudging families to influence their behavior and practices in breastfeeding and complementary feeding practices can be more efficient than simply providing the necessary information and education.

Nudging families can be simply achieved through continuous feeding of information about the importance of the appropriate IYCF using effective communication tools. Information feeding can take two different approaches. First, the promotion of IYCF through flyers, banners and short documentaries about the appropriate forms and importance of IYCF to tackle stunting and anemia. These flyers and banners should be present in every health care unit and delivery hospital. Short documentaries can also be played in the waiting room in health care units.

Second, sending frequent phone messages to the parents, as well as the grandmothers, can have a positive impact and remind them to adopt the appropriate practices. When families register the child's birth, they should be asked to provide the parents and grandmother's phone number. The Ministry of Health can create communication committees in partnership with communication companies such as Etisalat, Mobinil, and Vodafone. The main three communication companies in Egypt have their own corporate social responsibility (CSR). The Ministry of Health and international organizations can create partnerships with the CSRs and get deals on disseminating phone messages to registered families within the first two years of the child's birth. It is very important that the disseminated messages be short, concise and make best use of Behavioral Economics insights. For example, it is established that peo-

ple have a 'loss aversion' so, "individuals do not mind not having, but they do mind losing". This insight can be very helpful in designing messages that encourage IYCF by moving away from messages that state the benefits of IYCF to the negative outcomes that results from not adopting it.

3. Providing supporting and enabling environment:

Any attempt to educate mothers about appropriate IYCF practices and working on changing their behavior can not be translated to effective outcomes without taking into consideration the surrounding environment and social norms. Thus, any IYCF intervention should address social norms and should not be limited to targeting only mothers and should be extended to include family members and the wider community.

It is established that humans' behavior is based on how they perceive others are doing and likely compare themselves with others to evaluate themselves comparatively. This makes them motivated to change their behavior when they find that they are not doing better than average. Such a finding enabled behavioral economists to use the power of social norms to influence behavioral change. This can be easily used to influence behavioral change towards appropriate IYCF. One study found that providing feedback to households about their energy consumption relative to their neighbors was more effective at reducing energy consumption than using a cost-saving argument. The same principals can apply to improving IYCF practices through giving feedback to mothers and family about the good performance of other women. Creating an enabling and supportive environment to enable mothers to adopt appropriate IYCF requires involving different stakeholders through the use of social marketing. Family members, community leaders, religious institutions, and health providers should also be addressed. Targeted audiences can be reached either through mass media channels, such as TV, radio or through separate components on the NGOs and CDAs strategy for promoting IYCF.

4. Improving the healthcare services:

Improving healthcare services includes many aspects, but according to the findings regarding the causes of stunting and anemia, this paper will emphasize only the improvements needed to ensure the availability of the required micronutrients for mothers and children, and to build the capacities of healthcare providers.

4.1. Improving the supply chain management within the Ministry of Health

A comprehensive program to improve supply change management is required which includes:

- Training pharmacists on supply chain (starting from product selection and need forecasting until dispensing).

- Establishing an automated supply chain information management system allowing visibility and sharing information at the warehouse, governorate or central level.

Advantages:

Avoidance of shortage, stock outs and overstock and ensuring availability of optimum quantities according to needs.

Constraints:

Insufficiency of funds.

The budgetary constraints can be minimized by better coordination between different programs implemented in MoHP. MoHP jointly works with UNICEF to implement Integrated Perinatal Care and Child Health and Nutrition Program aimed at reducing child mortality and child malnutrition. This program is implemented currently in Gharbeya and Qalubeya. At the same time, MoHP has a pharmaceutical supply chain reform program starting its implementation in three governorates: Sharkia, Luxor and Aswan. This project is not functioning yet, but there is some progress occurring, already. Therefore, the MoHP may choose one of these three governorates as a pilot to implement nutrition programs.

4.2. Building capacities

Egyptian Practice Guidelines for Family Physicians, issued by the MoHP (2016), provides only one chapter on child health and with less emphasis on maternal health.

The First step is providing more comprehensive and specific guidelines which are required to cover all aspects regarding maternal and child health in the first 1000 days. This should be in consistent with the global guidelines. These guidelines can encompass particular sections for infants and young children feeding practices. It should be used as the main source of information for healthcare providers, enabling them to provide mothers with proper advice regarding their health during pregnancy, feeding practices and type of nutrition for their babies.

The second step is developing operational manuals to set standards to be followed and to clearly articulate the role of health workers who are working directly with pregnant women and mothers after delivery until their children are two years old.

The presence of such specific guidelines, with their standard operating procedures, will give the healthcare providers the sense that this issue is important and provide them with the appropriate directives to achieve lower percentages of stunted and anemic children.

The third step is providing healthcare providers and the pharmacist with the required training on these manuals to be qualified for delivering good quality services. Training for physicians to ensure proper understanding and implementation of these guidelines, and for pharmacists to ensure the availability of micronutrients mentioned in guidelines and to improve dispensing are all crucial. Moreover, training on growth monitoring for frontline workers is essential.

To improve IYCF, national policies were implemented in Vietnam, Bangladesh and Ethiopia depending on building capacities to deliver quality IYCF counselling

services on a large scale (Sanghavi et al, 2013). The three countries used the 5-day counselling course which is used as the essential reference for breastfeeding and complementary feeding training. Such training courses may be conducted to frontline workers and health providers enabling them to educate mothers about breastfeeding problems and how to manage them, and positioning and attachment, so that, mothers will be more encouraged to breastfeed instead of simply stopping breastfeeding. In addition, the health workers will be qualified to provide advice on age-appropriate complementary foods.

The fourth step is establishing an incentive system such as, fellowships and scholarships for best performing doctors based on a base-line evaluation to assess the extent to which mothers become more aware about their health and about the importance of breastfeeding and how to manage problems that might be faced, as well as their knowledge about complementary food.

Advantages:

Healthcare providers are the key issue; if they have enough knowledge about best feeding practices, and have willingness/are mandated to communicate this knowledge to pregnant women and mothers, they most probably will have a profound impact on enhancing breastfeeding and feeding practices.

Constraints:

Insufficiency of funds for training and incentives: MoHP can partner with the private sector for example; pharmaceutical companies could provide training as part of their social corporate responsibility, or with international organizations such as UNICEF and the World Bank.

vii Conclusion and recommendation

The high prevalence of stunting among Egyptian children has devastating consequences both on the individual and on the society level. This policy paper demonstrated that the high level of stunting between Egyptian children is highly attributed to a low level of priority given to stunting and the lack of a specifically designed policy to combat it. There is a need for a new policy that should be designed specifically to tackle stunting and anemia among Egyptian children.

This new policy should be based on a reformulation of nutritional policy so as to be built on the promotion of IYCF. Recognized IYCF is of great promise to tackle stunting, but also of great frustration. Although women's dietary practices during pregnancy and lactation; breastfeeding practices; and complementary feeding practices are identified as the most cost-effective investment to combat stunting and malnutrition, it is not given enough attention. Only 23 percent of Egyptian children were being fed according to the IYCF minimum standards for diet diversity and meal frequency (EDHS 2014). Improving IYCF practices is based on promoting positive behavioral changes so families can adopt appropriate breastfeeding and complimentary feeding practices. It requires that caregivers have: the knowledge and skills; motivation; and the supporting environment.

Our recommended policy option is integrate the five policy options illustrated above to promote IYCF. The five approaches are complementary and need to be implemented in parallel since none of them alone can lead to sustained behavior. For instance, promotion of the IYCF can't be given high priority unless there is a specific designed policy for tackling stunting and anemia which gives more emphasis on the importance on IYCF. Moreover, improving IYCF practices through awareness and education can't be translated to a successful outcome without improving the health care services and creating the enabling and supportive environment.

All Egyptian infants and young children have the right to benefit from optimal breastfeeding and complementary feeding and caring practices to protect them from stunting and anemia and its devastating consequences. Also, all care givers should have the knowledge, the skills, as well as the resources to adopt IYCF.

The following recommendations can ensure successful incorporation of the optimal IYCF practices and can support the Egyptian Ministry of Health to create its strategy for promoting recognized IYCF:

- Re-identifying Stakeholders with Clearly Defined Assignments and responsibilities is needed to ensure effective coordination between different stakeholders. Since promoting optimal IYCF targets not only mother but the whole of society to create a supportive environment, it requires adopting a participatory approach, which entails a re-identification of stakeholders. The responsibility for promoting IYCF shouldn't be limited to the Ministry of Health and the Egyptian Council for Children and Motherhood.

- Optimal IYCF should be promoted by a broad range of stakeholders beyond the health sector. The Ministry of Health can work in partnership with other ministries, in particular the ministries of: Agriculture; Education, Social solidarity, and Youth to ensure mainstreaming of promoting IYCF

- International organization such as UNICEF, WFP, and UNFPA can provide technical support, support on designing and implementing more research and piloting projects to enhance the design of the promotional programs

- Non-Governmental Organizations (NGOs) and Community Development Associations (CDAs) should be main stakeholders to maximize their great potential role that they can play on approaching the community and mobilizing more resources.

- It is necessarily to include the private sector as a main stakeholder. Promoting optimal IYCF promises healthy children who will be the backbone of the future labor force. Thus, the private sector, and particularly the corporate social responsibility of the private company, can support either by funding initiatives or participating directly in the implementation of the promotional programs. For example, communication companies should be integrated and approached to support in sending reminder phone messages to the parents about the appropriate IYCF.

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