

Changing the Landscape of Nutrition Programmes in Nigeria Using Precede-Proceed Model (PPM) and Trans-theoretical Model (TTM): A Shift to Change-Theory Approaches

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Abstract

There are empirical evidences that informed the cause and effect of malnutrition in Northern Nigeria. Addressing malnutrition in Northern Nigeria will require a shift from theories to resolving social-determinants. A desk research review was conducted on several nutrition-focus and/or sensitive programmes to examine its level of contributive change to resolving malnutrition in Nigeria. Findings reveals that nutrition programmes proposed and implemented in Nigeria have been largely focused on promoting health education than addressing socioeconomic and environmental characteristics. This paper focuses on critical analysis of empirical evidence of malnutrition in pregnancy and children, and proposes models towards addressing it.

Keywords: Malnutrition, socio-economic determinants, Precede and Proceed Model and Trans-Theoretical Model

1. Prevalence of Malnutrition

Malnutrition occurs when nutrients in meals are insufficient and does not necessarily meet the body requirement which may lead to malfunctioning of the body organs (Vakil, 2015). Inadequate nutrition, otherwise regarded as malnutrition is attributed to increase in premature deaths in mothers, infants and young children especially below age 2 (Black et al, 2003; Caulfield et al, 2004; Grantham-McGregor et al, 2007). Extreme poverty, hunger and malnutrition are common in northern Nigeria where half the children under 5 are stunted (UNICEF, 2015). In Jigawa and Zamfara states, more than half of the children surveyed (66%) were classified as stunted, 35% of the children were considered underweight and 7% of the children are wasted (CDGP Baseline Quan, 2014; NDHS, 1990). WHO (2015) affirmed that malnutrition is an attributive factor to numerous situations of physical impairment including brain development in children. Evidences has also shown that about 4% of infant mortality cases in Nigeria is attributed to protein-energy malnutrition (CDC, 2014; SCI 2010; WHO, 2005; Pelletier, 1995). Women who are malnourished are underweight during pregnancy and may lead to death (Vakil, 2015). This should drive major concerns to propose a nutrition sensitive programme for women in Northern Nigeria.

Malnourished children do not have the ability to fight illnesses, leading to known death from common illness like malaria, diarrhea, respiratory tract infections (Grantham-McGregor et al, 2007); as well as, chronic kidney failure, psychiatric disorder and even poor performance in school (Slayton, 2015). Malnourished children also have the tendency of growth retardation and possibility of developing in other non-communicable diseases in the adulthood such as diabetes and hypertension (Forero-Ramirez et al, 2014; de Onis et al, 2000; 2004). A low birth-weight baby is vulnerable to disease and premature death and is directly linked to a malnourished mother (WHO, 2014). This raise a call to action that interventions to reduce malnutrition should begin at conception and birth.

NDHS (1990) enumerated comparative trend of stunting and wasting in children from 1990 to 2003 (table 1).

Table 1: Trend of Stunting and Wasting Prevalence in Nigeria (1990 – 2003).

Survey Year	Age	Stunting (%)			Wasting (%)		
		Total	Urban	Rural	Total	Urban	Rural
1990	<5 years	43	35	46	9	7	10
1993	6 month- 6 years	40	35	45	21	-	-
1994	<5 years	52	-	-	11	-	-
1999	<5 years	32	23	38	16	14	16
1999	<3 years	46	42	47	12	11	13
2003	<5 years	42	36	44	9	8	10

Analysis herein stated revealed that Nigeria has not improved in addressing issue of malnutrition. Nigerian government have gone further to establish that persistent cases of child malnutrition have contributed to nearly 35% (1/3) of under-five deaths annually (FMOH, 2011; Ighogboja, 1992). Such deaths are preventable but continue to occur as a result of skewed access to good nutrition, health care services (UNICEF Report, 2015). Emerging concerns to stakeholders is that malnutrition in children are also linked to their mothers who are underweight during pregnancy leading to increased rate of maternal and infant mortality (Abubakar et al, 2011;

SCI, 2010; Schooley & Morales, 2007; Vakil, 2015; Vossenaar et al, 2009; Wachs, 2008 & Levinson et al, 2007). Policy direction and thrust for nutrition-sensitive programmes targeting pregnant women and children in Nigeria is urgently needed.

2. Social Determinants of Malnutrition

The determinants that affect malnutrition differs in context with efforts to eradicate smallpox, polio and malaria. Malnutrition factors are more of intrapersonal, interpersonal and community ecological settings. It's more related to the behavior change than institutional structures; invariably require application of the Behaviour Change Model (Prochaska et al, 2008). Averting malnutrition relies heavily on addressing socio-economic and cultural determinants like poverty, inequality gender role and cultural taboos/misconceptions.

Several factors increase the likelihood of malnutrition to include:

Low income level of households: Empirical evidence reveals that most households is not able to afford nutritious diet as a result of low income. Households in Northern Nigeria are very poor with households having per capita expenditures below the global poverty line of US\$ 1.25 per day (Save the Children, 2010). Nutritionally adequately diet cannot be afford by about 47% of households in Daura Local Government Area (Save the Children, 2010). Comparatively, the likelihood for a child to be underweight is 3.5 times higher among children in poorest household than richest households (UNICEF, 2010).

Child stunting aggravate when the level of economic resources in the household decline (Ayoyemi et al, 2012). Effect of poverty on a household could include lack of (or variety) of food and marginal means of livelihood leading to increased vulnerability of women to a worse food situation (Mwangome et al, 2010). This explained that diminishing household resources can lead to malnutrition in children and pregnancy. Household economic strengthening is lacking in most nutrition sensitive programmes in Nigeria.

Poor infant and young feeding practices: A recent study conducted in Katsina State, Northern Nigeria revealed a low feeding practice in two local government areas among lactating mothers with less than half of the mothers reported to have denied their children colostrum (Save the Children, 2010). There are misconceptions about adequate breastfeeding practices. Very few people believe that the baby should be breastfed immediately after birth, half believe the baby should not be exclusively breastfed during the first days of life, and almost another half believe that colostrum is not good for the baby (Save the Children, 2010). Depriving babies' colostrum is equivalent to denying babies their first and most relevant immunization against child related illness caused by bacteria and other viruses.

Inequality in Gender Role: Addressing malnutrition in household require that important attention should be given to addressing inequality in gender role within the household and the larger community. Such inequalities are linked to unequal access and control of assets and source of income. This has grossly affected the ability of women to provide food, seek for care and social support for self, her children (especially the female children) and even their husbands (Oniang'O & Makudi, 2002). Mwangome et al (2010) posited that women are made to engage in intense labour (even while there're pregnancy) under tensed condition and this possible affect time allotted to their health and the nutritional needs of their children. Empirical evidence have further proven that women do not have the needed social power and control over household finances and are not able to negotiate the kind of meals or food choice for their children (Müller & Krawinkel, 2005). This is an aspect that have not been considered by implementers of different programmes and policies against malnutrition in children and pregnancy.

3. Policies and Programmes to Combat Malnutrition

Several initiatives and policies have been proposed by Nigerian Government and development partners to curb malnutrition in Nigeria over the years. Ayoyemi et al (2012) shared some nutrition-sensitive initiatives and policies implemented in Nigeria:

- Food and Nutrition Policy (FNPN) – focused on improving nutritional status of most vulnerable Nigerians.
- National Plan of Action for Food and Nutrition – A policy guideline to coordinate and building partnership towards realizing nutrition outcomes in line with MDGs.
- The Primary Health Care Programme – A local structure setup to mainstream nutrition activities into the health care system and services.
- Accelerated Child Survival and Development – An initiative funded by UNICEF to reduce nutrition-attributed child mortality by 35% by 2010
- Catchment Area Planning and Action – A new initiative to promote family and community-centered child health interventions
- The Gender Informed Nutrition and Agriculture Initiative – Setup to raise concern on micronutrient deficiencies.

- The Agriculture Nutrition Advantage (TANA) – A partnership initiative with International Institute of Tropical Agriculture to end hunger in Africa.
- The Home-Grown School Feeding and Health Program – A project supported by Nigeria’s Federal Government targeting school-aged children to reduce child malnutrition and poverty.
- Vitamin A Supplementation Initiative – An initiative setup to address under-five mortality caused by vitamin A deficiency.
- Food Fortification and Bio fortification Programme – This was an initiative of Nigerian Government to address iodine deficiency disorders (IDD) through legislation and enforcement of vitamin A in flour, edible vegetable oil and sugar produce.
- National Special Program for Food Security (NSPFS) – This was another initiative of the Federal Government of Nigeria in partnership with Food and Agricultural Organization to provide sustainable measure to create access to food and increase productivity.

Nutrition programmes proposed and implemented in Nigeria have largely focused on promoting health education than addressing socioeconomic and environmental characteristics. Such health education and awareness programmes involved providing awareness on the cause of illness and change in behavior, yet appropriate action have not been achieved (Mwangome et al, 2010; Glanz et al, 2002). Knowledge on nutrition shown by a mother can be connected to that of her children (Appoh & Krekling, 2005), but cannot be achieved with health education only (Knight, 2006) and goes further to prove that adequate knowledge may not actually translate to appropriate actions (Lee & Garvin, 2003). Mwangome et al (2010) & Levinson et al (2007) advised that designing an effective programme to address malnutrition should be based on a valid understanding of the factors that can aid moving of knowledge in child nutrition into appropriate action. To achieve this, a system can be introduced to assess, monitor and track knowledge, attitude and practices and its applicability.

4. Analyzing Theoretical Frameworks for Malnutrition Interventions

Empirical evidences have shown that most health promotion programmes do not have theoretical foundation or conceptual model and thus not in tandem with current health promotion practice and standard (Bauer et al., 2003; King, 1994; Stokols, 1996; Whitehead, 2004). Whitehead (2006) affirms that health promotion programme that is not based on theory is unlikely to influence health promotion practice. The Precede and Proceed Model and Trans-theoretical Model (TTM) present strategies that will drive the success of curbing malnutrition in pregnancy and children.

4.1 Precede – Proceed Model

Precede-Proceed Model is a participatory tool that facilitate community engagement in eliciting exhaustive and effective ideas about issues, setting strategies to resolve them and thereby building ownership (Community Toolbox, 2015; Green and Kreuter, 2005; Phillips, Rolley & Davidson, 2012). The PPM will be implemented through these five steps:

1. *Social and Epidemiological assessment: Identifying social and*
 - Food habits and taboos: Some individuals or communities have some negative feelings on consumption of cereals, legumes, fruits, vegetables and roots (FAO, 2016).
 - Nutritional food habits: Consuming protein-rich foods are somewhat beneficial. Some custom prefer soured milk to fresh milk.
 - Prevalence of underweight among under-five.
2. *Environmental and Behavioural Risk Assessment:*
 - Inappropriate feeding practice
 - Parent’s level of education
 - Safe drinking water
 - Sanitary waste disposal
 - Overcrowded household
 - Household income
3. Identification of Predisposing, Enabling and Reinforcing factors
 - A. Predisposing Factors:
 - Impaired nutritional intake
 - Impaired absorption; and
 - increased metabolic demand
 - B. Enabling factors:
 - Low level of resources
 - High cost of acquiring nutritious food
 - Dilapidated living condition

- Low support from government (federal, state and local)
- Limited capacity to influence behavior change
- C. Reinforcing factors:
 - Immediate family and in-laws support are customary than based on scientific evidence (de Bourdeaudhuij, 1997)
 - Parent's perception about local food not been nutrient sufficient.
- 4.. Intervention Strategies
 - Infant and young feeding counseling
 - Food demonstration
 - Cash transfer to support nutritious food purchase
 - Media engagement for enlightenment
 - Meetings with community leaders, religious groups and beneficiaries reference group members
- 5. Evaluation
 - Post distribution monitoring
 - Mid-term review and evaluation
 - Impact evaluation

4.2 *Transtheoretical Model (TTM)*

Stages of change to be followed using the Transtheoretical Model will be:

- Stage 1 – No intention to change: Community beneficiaries at this point are definitely not aware or not informed on the consequences of their actions and behavior. Nutrition interventions are initiated at high demand at this level – peer education and mass media.
- Stage 2 – Indecisive: Beneficiaries are considering to change or maintain current behavior. Focus on nutrition intervention will gradually be narrowed to interpersonal counselling.
- Stage 3 – Preparation: Beneficiaries prepares to change behavior in couple of months due to participation in nutrition-sensitive interventions but is still engaging in current practice. Followup using support group of beneficiaries will be initiated.
- Stage 4 – Action: Beneficiaries are now changing behavior with strong commitment and significant stories of change. These beneficiaries will be used as frontline leaders to further motivate others.
- Stage 5 – Behaviour Maintenance: Beneficiaries work to avoid relapse in behavior and is an actively champion motivating others to change behavior. Ensure regular participation of beneficiaries in structural meetings and advocacy to government.

5. Recommendation and Conclusion

Stakeholders should focus attention in reducing malnutrition and save every last Nigerian child from stunting and wasting. Malnutrition programmes in Nigeria should incorporate an aspect of household economic strengthening in order to curb prevailing poverty in the households. Theories help build a direction for better outcome of any proposed actions. Similarly, it's necessary to understudy cultural perspective of identified health issues in order to determine which theory is most appropriate.

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