Our Heritage

ISSN: 0474-9030

Vol-68-Issue-1-January-2020

Issues and Challenges In Prevention and Control of Iron Deficiency Anemia In Developing Countries Like India

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Abstract

The present paper aims to present theiron deficiency reduce individuals' wellbeing, cause fatigue and lethargy, and impair physical capacity and work performance. Median losses in physical productivity due to iron deficiency are important. Failure to reduce anemia worldwide consigns millions of women to impaired health and quality of life, generations of children to impaired development and learning, and communities and nations to impaired economic productivity and development. Maternal anemia is associated with mortality and morbidity in the mother and baby, including risk of miscarriages, stillbirths, prematurity and low birth weight. The most common cause of anemia appears to be diet-related iron deficiency which is generally an insufficient quantity of dietary iron to meet the enhanced needs during specific life phases (infancy and young childhood, adolescence, and pregnancy).

***Keywords: Iron deficiency, NFHS, WHO,* UNICEF,**

Introduction

In 2012, the World Health Assembly Resolution 65.6 endorsed a *Comprehensive implementation plan on maternal, infant and young child nutrition,* which specified six

ISSN: 0474-9030

Vol-68-Issue-1-January-2020

global nutrition targets for 2025. This policy brief covers the secondtarget a 50% reduction of anemia in women of reproductive age. The purpose of this policy brief is to increaseattention to, investment in, and action for a set of cost-effective interventions and policies that can help Member States and their partners in reducing the rates of anemia among women of reproductive age.

Iron deficiency reduce individuals' wellbeing, cause fatigue and lethargy, and impair physical capacity and work performance. Median losses in physical productivity due to iron deficiency are important. Failure to reduce anemia worldwide consigns millions of women to impaired health and quality of life, generations of children to impaired development and learning, and communities and nations to impaired economic productivity and development. Maternal anemia is associated with mortality and morbidity in the mother and baby, including risk of miscarriages, stillbirths, prematurity and low birth weight

Anemia impairs health and wellbeing in women and increases the risk of maternal and neonatal adverse outcomes. Anemia affects half a billion women of reproductive age worldwide. In 2011, 29% (496 million) of non-pregnant women and 38% (32.4 million) of pregnant women aged 15–49 years were Anemia. The prevalence of Anemia was highest in south Asia and central and west Africa. While the causes of Anemia are variable, it is estimated that half of cases are due to iron deficiency. In some settings, considerable reductions in the prevalence of Anemia have been achieved; however, overall, progress has been insufficient. Further actions are required to reach the World Health Assembly target of a 50% reduction of Anemia in women of reproductive age by 2025.

According to the World Health Organization (WHO) about 30% of the world population was anemic in 1985 and about 37% of women were anemic during 1992. In 2008 WHO reported 24.8% of the world's population is affected by anemia, of whom

ISSN: 0474-9030

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42% were pregnant women, 30% non-pregnant women, and 47% were preschoolchildren. In India, reported the anemia prevalence at 22.9% in 2019.

World Health Organisation (WHO) estimates that 50% of malnutrition is associated with repeated diarrhoea or intestinal worm infections as a result of unsafe water, inadequate sanitation or insufficient hygiene. While there has been considerable progress in ensuring safe drinking water, ensuring universal access to sanitation and improving hygiene practices remains a key challenge. New initiatives are now being taken up to expand and intensify deworming interventions. NFHS 4 (2015-16) shows that families are now more inclined to use improved water and sanitation facilities. Over two-thirds of households in every State/UT (except Manipur) have access to an improved source of drinking water, and more than 90% of households have access to an improved source of drinking water in 19 States/Union Territories. More than 50% of households have access to improved sanitation facilities in 26 States/Union Territories. Similarly, in 20 States/ UTs, more than 50% households use clean cooking fuel, which reduces the risk of respiratory illness and pollution.

Globally, the prevalence of Anemia fell by 12% between 1995 and 2011 – from 33% to 29% in nonpregnant women and from 43% to 38% in pregnant women, indicating that progress is possible but presently insufficient to meet these goals. It is therefore urgent that countries review national policies, infrastructure and resources and act to implement strategies for theprevention and control of Anemia. The World Health Organization (WHO) has published revised guidelines that support policies for the prevention and control of Anemia. Once implemented, these interventions work to restore appropriate haemoglobin concentrations in individuals and reduce the prevalence of Anemia in a population. Successful reduction in the prevalence of Anemia in women of reproductive age will improve children's school performance and women's work productivity, and improvepregnancy outcomes for mothers and infants, resulting in

ISSN: 0474-9030

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intergenerational benefits for individual health, well-being and economic potential and community development.

Anemia is interlinked with the five other globalnutrition targets (stunting, low birth weight, childhoodoverweight, exclusive breastfeeding and wasting).In particular, the control of Anemia in women ofchildbearing age is essential to prevent low birthweight and perinatal and maternal mortality, as well asthe prevalence of disease later in life. It is therefore inpolicy-makers' interests to make necessary investments in Anemia now, as a means to promote human capitaldevelopment and their nations' economic growth andlong-term health, wealth and well-being. Policy-makersshould consider prioritizing the following actions, in orderto reach the global nutrition target of a 50% reduction ofAnemia in women of reproductive age.

NATIONAL FAMILY HEALTH SURVEY (1998-1999)

Iron deficiency is the mostwidespread form of malnutrition in the world, affecting more than two billion people (Stolzfusand Dreyfuss, 1998). In India, Anemia affects an estimated 50 percent of the population(Seshadri, 1998).Anemia may have detrimental effects on the health of women andAnemia may have detrimental effects on the health of women and children and maybecome an underlying cause of maternal mortality and perinatal mortality. Anemia also resultsin an increased risk of premature delivery and low birth weight (Seshadri, 1997). Early detectionof Anemia can help to prevent complications related to pregnancy and delivery, as well as childdevelopmentproblems. Information on the prevalence of Anemia can be useful for thedevelopment of health-intervention programmes designed to prevent Anemia, such as ironfortificationprogrammes. In India, under the Government's Reproductive and Child HealthProgramme, iron and folic acid tablets are provided to pregnant women in order to preventAnemia during pregnancy.

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The Baby Friendly Hospitals Initiative, launched by the United Nations Children's Fund (UNICEF), recommends initiation of breastfeeding immediately after childbirth. The World Health Organization (WHO) and UNICEF recommend that infants should be given only breast milk for about the first six months of their life. Under the Reproductive and Child Health Programme, the Government of India recommends that infants should be exclusively breastfed from birth to age four months (Ministry of Health and Family Welfare, n.d.). Most babies do notrequire any other foods or liquids during this period. By age seven months, adequate and appropriate complementary foods should be added to the infant's diet in order to provide sufficient nutrients for optimal growth. It is recommended that breastfeeding should continue, along with complementary foods, through the second year of life or beyond. It is further recommended that a feeding bottle with a nipple should not be used at any age, for reasons related mainly to sanitation and the prevention of infections.

NATIONAL FAMILY HEALTH SURVEY (2005-2006)

It collected information from women on specific problems they may have hadduring their pregnancies and whether they saw anyone for antenatal care for their pregnancy.Women who received antenatal care were asked about the care provider, the timing of the firstantenatal care visit, the total number of visits, the procedures conducted as part of their antenatalcare, and the advice given to them. In addition, the survey asked women whether they receivedtetanus toxoid injections and iron and folic acid tablets or syrup during the pregnancy. Resultsfrom each of these questions are discussed in this chapter. The fathers of children for whom themother did not receive antenatal care were asked why the mother did not receive antenatal care.

NATIONAL FAMILY HEALTH SURVERY (2015-2016)

The prevalence of Anemia among women is more than 60 percent or more in Jharkhand, Haryana, West Bengal, Bihar, andAndhra Pradesh, and the prevalence is less than one-third in Mizoram (25%), Manipur (26%), Nagaland (28%), and Goa(31%). The

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prevalence of Anemia is also very high in the union territories of Dadra & Nagar Haveli (80%), Chandigarh(76%), and the Andaman & Nicobar Islands (66%). The statewise distribution pattern of Anemia prevalence in men issimilar to that in women, except that the prevalence among men in Haryana and Chandigarh is slightly below the nationalaverage whereas it is well above the national average in the case of women. A Special feature of NFHS-4 is the inclusion of testing of the adult population for blood glucose, blood pressure and HIV. Unlike NFHS-A Special feature of NFHS-4 is the inclusion of testing of the adult population for blood glucose, blood pressure and HIV. NFHS -4 provides estimates of HIV prevlance of the national levels for 11 groups of states/Union territories (UTs) including high HIV prevalence states. Specifically NFHS-4 provides estimates of blood glucose levels and blood pressure among women age 15-49 and men age 15-54 for all of India, state and union territories and districts.

Issues and Challenges of Iron Deficiency Anemia in developing countries

The most common cause of Anemia appears to be diet-related iron deficiencyAnemia which is generally an insufficient quantity of dietary iron to meet the enhanced needs during specific life phases (infancy and young childhood, adolescence, and pregnancy). This deficiency is caused by consumption of low levels of iron in the diet, and/or low bioavailability of the iron that is in the diet (for example, due to the form of iron, the presence of high levels of absorption inhibitors, the lack of absorption enhancers). In addition to these diet-related causes, iron deficiency in women of childbearing age is also associated with repeated pregnancies, bleeding associated with use of intrauterine devices (IUDs) for birth control and excessive menstrual bleeding. Infections with helminths causing chronic blood loss (hookworm, schistosomiasis, and to a much lesser degree, trichuris) are another major cause of iron deficiency Anemia in areas where such infections are endemic. Other pathological blood losses (e.g., haemorrhoids, peptic ulcer, and other less common gastrointestinal diseases and malignancies) can also contribute to iron deficiency Anemia, as can processes that impair

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iron absorption and use: (e.g. malabsorption syndromes, chronic and/or repeated diarrhoea and rare genetic conditions). The consequences of low socio-economic status that effectively raise Anemia rates include a lack of food security, inadequate or lack of access to health care and poor environmental sanitation and personal hygiene. Some genetic causes of Anemia are sickle cell disease, thalassemia major and other haemoglobinopathies.

Deficiencies of key vitamins and minerals such as Vitamin A, Iron, Iodine and Zinc continue to coexistand interact with protein and energy deficits and need to be addressed synergistically, through amultipronged approach.

1.Vitamin A

Sub-clinical Vitamin A Deficiency (VAD) is a well-known cause of morbidity and mortality,especially among young children and pregnant women. Vitamin A deficiency limits the growth ofyoung children, weakening their immunity and in cases of acute deficiency, leading to blindnessand to increased mortality. Vitamin A supplementation has proven successful in reducing theincidence and severity of illness. It has been associated with an overall reduction in childmortality, especially from diarrhoea, measles and malaria. As per NFHS-4, 60.2% children aged9-59 months received the six monthly Vitamin A supplement in the six months before the survey.

However, inter-state variation in Vitamin A Supplementation for children aged 9-59 monthscontinues with Goa at 89.5% and Nagaland at 27.1%.

2.Iron

Iron Deficiency Anemia (IDA) is common across all age groups, but highest among morevulnerable young children, adolescent girls, pregnant and lactating women. The consequencesof IDA in pregnant women are increased risk of low birth weight or premature delivery, peri-nataland neonatal mortality, inadequate iron stores for the new-

ISSN: 0474-9030

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born, lowered physical activity,fatigue and increased risk of maternal morbidity. Iron deficiency impairs growth, cognitivedevelopment and immune function. It reduces the performance level of children in school andmakes them less productive as adults.Anemia is a major health problem affecting 53% ofwomen (15-49 years) and 22.7% of men in India as per NFHS-4. 50.3% of pregnant women werefound to be anaemic, as per NFHS-4. Anemia was found to be considerably higher in rural areasthan urban areas, for disadvantaged groups (particularly scheduled tribes) and for children andwomen in households in the lower wealth quintiles.

3. Iodine Deficiency Disorders

IDD constitute the single largest cause of preventable brain damage worldwide, leading tolearning disabilities and psychomotor impairment. As per NFHS 4, 93.1% households were usingsalt that was adequately iodized; others were using salt that was either inadequately iodized orwas not iodized at all.

4. Zinc

Zinc deficiency results in the stunted growth of children. Zinc deficiency compromises theeffectiveness of the immune system, increasing the incidence and severity of infections such asdiarrhea disease and pneumonia. Therefore, as per MHFW guidelines, diarrhea management is envisaged through ORS with zinc supplementation, which is used as a key indicator ofprogramme interventions. As per NFHS 4, the percentage of children with diarrhea in the last 2weeks preceding the survey who received zinc supplementation is found to be 20.3%. However,

inter-state variation in the ‘children with diarrhea in the last two weeks who received zinc’continues with Puducherry at 69.6% and Andaman and Nicobar Islands at 8.3%.

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Prevention and Control of Iron Deficiency

1. A diet containing adequate amounts of bioavailableiron should underpin all efforts for prevention andcontrol of Anemia.
2. Malaria control: chemoprophylaxis/intermittentpreventative treatment, insecticide-treated netsand vector elimination.
3. Deworming: periodic treatment withanthelminthic (deworming) medicines, withoutprevious individual diagnosis, for all womenof childbearing age (including pregnantwomen in the second and third trimesters andbreastfeeding women) living in endemic areas.For non-pregnant women, treatment shouldbe given once a year when the prevalence ofsoil-transmitted helminth infections in thecommunity is over 20%, and twice a year whenthe prevalence of soil-transmitted helminthinfections in the community exceeds 50%.
4. Delayed cord clamping (not earlier than 1 min afterbirth) is recommended for improved maternal andinfant health and nutrition outcomes, includingincreased iron stores in term infants, reducing theneed for blood transfusions for low blood pressureor Anemia in preterm neonates.
5. Early interventions targeting adolescent girls forprevention of iron deficiency are critical,especially in areas with high adolescent birth ratesand early marriages.
6. Basic hygiene reduces the risk of infection; therefore,water and sanitation interventions can be integrated,in order to reduce nutritional losses incurred byinfection, and also reducing inflammation.
7. Education must encompass the component ofreproductive health and family planning servicesfor women and adolescent girls, to encouragedialogue and promote adequate birth spacing.Education will help promote gender equality andfemale empowerment.

Recommendations

Intermittent iron and folic acid supplementation is advised in menstruating women living in settings where the prevalence of Anemia is 20% or higher.

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Daily oral iron and folic acid supplementation is recommended as part of antenatal care, to reduce the risk oflow birth weight, maternal iron deficiency. In addition to iron and folic acid, supplements maybe formulated to include other vitamins and minerals, according to the United Nations Multiple MicronutrientPreparation (UNIMAP), to overcome other possible maternal micronutrient deficiencies.

1. In areas where the prevalence of Anemia among pregnant women is lower than 20%, intermittent iron and folic acid supplementation in non-anaemic, pregnant women is advised, to prevent Anemia and to improve pregnancy outcomes.
2. In the postpartum period, iron supplementation, either alone or in combination with folic acid, for at least 3 months, may reduce the risk of Anemia by improving the iron status of the mother.
3. Fortification of wheat and maize flours and rice with iron, folic acid and other micronutrients is advised in settings where these foods are major staples.
4. In malaria-endemic areas, the provision of iron and folic acid supplements should be made in conjunction with public health measures to prevent, diagnose and treat malaria.
5. In emergencies, pregnant and lactating women should be given the United Nations Children's Fund (UNICEF)/ WHO micronutrient supplement providing one RNI (recommended nutrient intake) of micronutrients daily (including 27 mg iron), whether or not they receive fortified rations. Iron and folic acid supplements, when already provided, should be continued.
6. All pregnant women with active tuberculosis should receive multiple micronutrient supplements that contain iron and folic acid and other vitamins and minerals, according to the UNIMAP, to complement their maternal micronutrient needs.
7. Exclusive breastfeeding of infants up to 6 months of age should be protected, promoted and supported. The beneficiaries include the infant and the mother (i.e. longer amenorrhoea, increased birth spacing), as well as the neonate (breast milk is an important source of iron, which is very well absorbed).

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8. A diet containing adequate amounts of bioavailable iron should underpin all efforts for prevention and control of Anemia.

The government is making continuous efforts to check anemiaand many nutritional intervention programmes and policies havebeen launched to curb the prevalence of anemia. The main purpose was promotionof iron rich food, provision of iron and folate supplements tohigh risk groups (all pregnant and lactating women, Intra UterineDevice users), identification and treatment to severely anemic peopleand to educate mothers on health and nutrition to prevent

Conclusion

` Finally to conclude this paper discusses on the very important issues on the Iron deficiency on children and women. Even though the WHO and UNICEF has taken various preventive measures and steps to control the iron deficiency in the children and women. To the glance of the study NFHS1 NFHS 2 NFHS3 NFHS4 discusses on the India with the states of Goa, The iron deficiency among women is more than 60 percent or more in Jharkhand, Haryana, West Bengal, Bihar, andAndhra Pradesh, and the prevalence is less than one-third in Mizoram, Manipur, Nagaland, and Goa and it is also very high in the union territories of Dadra & Nagar Haveli, Chandigarh, and the Andaman & Nicobar Islands.According to the MHFW guidelines, diarrhea management is envisaged through ORS with zinc supplementation, which is used as a key indicator ofprogramme interventions. It also proves that Vitamin A supplementation has proven successful in reducing theincidence and severity of illness.

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