Editorial

# Maternal and Infant Nutrition Status in Malaysia: Potential Opportunities for Improvements

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In the early stage of life, complete and balanced nutrition is very important to ensure optimal physical growth and brain development[1]. Malnutrition among pregnant and lactating mothers has shown negative birth outcomes[2]. The Barker's hypothesis highlighted that malnutrition among pregnant and lactating mothers not only affects the child during infancy but also increases the risk of chronic diseases later in life[3]. The late Professor Barker's findings established the significance of the first 1000 days of life, and have been replicated in several prenatal cohort studies conducted worldwide[4-6].

Malaysia's economy in the past decade has shown drastic progress. Along with the process of development, the Malaysian population is experiencing a triple burden of malnutrition which encompasses obesity in adults, anemia in reproductive age women and stunting in children[7]. The prevalence of overweight and obesity among adults is on the rise[8]. The latest Malaysian National Health and Morbidity Survey (NHMS 2019)[8] reported that 50.1% of Malaysian adults are suffering from overweight and obesity, and 54.7% of them are female. Abdominal obesity was also reported to be highest among females (64.8%) as compared to males. A recent scoping review of literature in Malaysia concluded that high pre-pregnancy body mass index, gestational diabetes and pre-eclampsia are risk factors for fetal macrosomia[9]. Furthermore, high gestational weight and high blood pressure are commonly found among pregnant women with high pre-pregnancy BMI[10].

Anemia is a condition characterised by a low concentration of red blood cells that could transport oxygen in the body. The NHMS 2019 reported that 3 out of 10 women from the reproductive age group are anemic. The prevalence of anemia in pregnancy ranged from 19.3% to 57.4% in the year 2003 until 2019[11]. This condition may increase the risk of miscarriage and premature delivery for the mother. On the other hand, in terms of the infant, an anemic mother may cause low birth weight and stunting. Thus, the high prevalence of stunting in children may have been influenced by anaemia in pregnancy, which frequently occurs and has long since been treated. The latest prevalence of stunting among children below 5 years old is 21.8% (NHMS 2019)[8]. As maternal anemia is one of the risk factors for stunting, other nutritional and environmental risk factors may also have contributed to the high prevalence of stunting among Malaysian children. Moreover, stunted children have a higher risk of being an overweight or obese adult due to the lower height denominator in the BMI formula[12]. It could also be possible that the Malaysian community is caught up in the domino effect, of obesity among adults, anemia during the reproductive age among women, and children with stunting.

Early intervention on maternal and infant nutrition could provide a greater benefit as compared to late intervention[13]. Hence, it is important that appropriate action is carried out by several stakeholders to stop this problem from escalating further. The Malaysian Ministry of Health has developed a National Plan of Action for Nutrition of Malaysia III, 2016-2025[14] and also The Nutrition Research Priorities in Malaysia, 2021-2025[15]. Both documents develop several strategies on maternal and infant health improvement in the country. One of the strategies in the latter document proposed to develop and strengthen strategies/programmes/policies for maternal, infant and young child nutrition. Currently, the Malaysian Ministry of Health have 3 major intervention programmes. First, there are weight management programmes for pregnant mothers which were conducted by monitoring gestational weight gain (GWG) and counselling sessions. Second, there is a programme for the prevention and control of micronutrient deficiencies which is managed via micronutrient supplementation and fortification. Third, advocacy on healthy eating for women of reproductive age and pregnant women is conducted through digital media and seminars[14].

Considering the poor health condition of adult Malaysian women of reproductive age, improving the health literacy and lifestyle of this important group could provide an effective long-term solution for maternal and infant nutrition. The first 1000 days' concept highlights the importance of nutrition from conception until the second birthday of the child. However, for a better outcome, the importance of nutrition should be promoted not only during pregnancy but also before pregnancy takes place. As mentioned earlier, pre-pregnancy BMI was one of the risk factors for poor birth outcome and child growth. Inadequate micronutrient intake is also associated with poor infant growth and brain development. Both high BMI and poor dietary intake of pregnant women is carried over from poor lifestyle prior to pregnancy. Hence, effective and suitable strategies for this age group should be explored.

Besides that, the potential of the internet should be maximised by incorporating it into effective interventions. It is high time for relevant agencies dealing with maternal and infant nutrition issues to create innovative mhealth based intervention. The use of mhealth in research interventions is gaining attention globally[16]. Basic communication apps such as WhatsApp and Telegram could be used to educate and to communicate with families. Through these applications, researchers could send text, photos and videos to research participants. An intervention study in Nagpur, India, used phone counselling calls and daily text messages among pregnant women in their third trimester to improve breastfeeding indicators. At the end of the intervention, the breastfeeding rate showed significant improvement in the intervention group as compared to the control group[17]. Malaysia also has a high potential in applying such technology, based on the Department of Statistics, Malaysia (2022)[18]. It has shown that the percentages of internet users are 96.8% and 98.7% among individuals who own a mobile phone. Based on this observation, some local researchers are beginning to initiate such projects and we shall be able to learn from their experience in conferences and scientific publications in the

near future. Researchers around this region should also explore the potential of mhealth as a novel intervention tool, due to the maternal and infant nutrition in each community being unique. The creation of more innovative and up-to-date interventions may be able to elevate the maternal and infant nutrition issues that have been causing many short- and long-term health problems in this region.

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