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Health and nutrition in adolescents and young women: Preparing for the next generation,

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Adolescent health and nutrition receives low attention in developing countries because of the relatively low morbidity and mortality rates. Currently, there are over 1.2 billion adolescents and 90 per cent of them live in developing countries. It is estimated that the adolescent population will increase to 1.3 billion by 2030; of these, 500 million will be girls in the age group 10-17 yr. Nearly 16 million adolescent girls give birth every year; most of these girls live in developing countries and are married. There are ongoing efforts to improve obstetric care to these high risk pregnant adolescents. Despite this, prevalence of morbidity, obstetric problems, perinatal and maternal morbidity and mortality rates are higher in these girls. Early age at menarche, increased sexual activity in teenage, rising obesity rate and its adverse health and reproductive consequences are some of the problems in adolescent girls which need urgent attention.

Nestlé Nutrition Institute organized a workshop on health and nutrition in adolescents and young women in Bali, Indonesia in November 2013. The presentations made in the Workshop have been compiled in the present publication. There are 10 articles on various aspects of adolescent health and nutrition in this volume, grouped under three sections namely 'Global Epidemiology and Risk Factors', 'Role of Nutrition in Adolescent Health' and 'Interventions'.

In the first section, the first article is on the global issues and challenges being faced by adolescents. These include poverty, poor education, early sexual activity, early marriage; poor access to health and nutrition services; all these adversely affect the health and nutrition status of the adolescents and increase the risk of adverse outcomes. The authors state that the current

scenario can be effectively changed by improving education, and access to healthcare; identifying local needs and implementing evidence-based, effective, time-tested, low cost intervention programmes under close monitoring and supervision can dramatically improve the situation. The second article reviews the pre-conception care and nutrition intervention in adolescent girls from low and middle income countries. Undernutrition and multiple micronutrient deficiencies are common in adolescent girls; interventions to improve nutritional status of the adolescent girls prior to marriage and conception may prevent adverse effect of anaemia and undernutrition on the course and outcome of pregnancy. Peri-conceptual folate supplementation may reduce the prevalence of neural tube defects. Simultaneously there should be efforts to identify and manage adolescent obesity and associated health problems. The third article is on adolescent health and nutrition in the US and Canada. The overview outlines adolescent development in these countries, how they affect the personal identity, pattern of friendships, ethical beliefs, and approach to the world. Alcohol and substance abuse and associated health hazards are public health problems in adolescents also. Adolescent pregnancy is often out of wedlock and access to abortion services are major issues in these two countries.

In the second section, the first article is on nutrition challenges and issues of relevance to adolescents in low and middle income countries. Adolescent growth spurt offers the last chance for catch up in linear growth and should not be curtailed by the advent of pregnancy. If the need for extra nutrients for adolescent growth is met by appropriate macro- and micronutrient supplementation, it will be possible not only to improve course and outcome of pregnancy in adolescent mothers but also growth and health status of the offspring. The review of current evidence on health and nutrition in adolescents and young women in low and middle income countries has shown that persistent undernutrition and anaemia are major problems in many countries; obesity is also emerging as a public health problem in adolescents. Important social determinants of health in adolescents include poverty and unemployment levels, income, gender and education. The article recommends that adolescent health policy and programme interventions should take into account the social determinants of health, strive to reduce inequities, improve access to health and nutritional services. The article entitled "Platforms for Delivery of Adolescent-Friendly Health Care"

emphasises the importance of responding to the changing needs for healthcare among adolescents and providing appropriate, acceptable and accessible healthcare. The article addresses the barriers faced by adolescents in accessing healthcare and challenges in providing healthcare that is private and confidential to adolescents and simultaneously supporting their parents and care givers. The last article in this section is on issues and consequences of polycystic ovarian syndrome in young women. With a rapid increase in adolescent obesity, many countries are facing a sharp increase in polycystic ovarian syndrome in adolescents with all its nutritional, metabolic, endocrine and psychological manifestations. The article emphasizes that correction of unhealthy dietary patterns and increase in physical activity are the core interventions not only for the control of the current problems but also to reduce long term consequences such as diabetes and hypertension in these young women.

The last section has three articles discussing evidence-based interventions in adolescents. The first article is on interventions for obesity, pre-diabetes and diabetes. It is well documented that obesity is associated with higher prevalence of gestational diabetes and adverse pregnancy outcome. The authors emphasise that high priority has to be accorded for ensuring healthy eating and adequate physical activity so that optimal weight is maintained in the pre pregnancy period and during pregnancy. The second article is on interventions before and during

pregnancy to minimize the risks of overweight pregnancy. Overweight in pregnancy is associated with higher risk of gestational diabetes, pregnancy induced hypertension, and caesarean section rates. The infant is at a higher risk of macrosomia, birth injuries, neonatal hypoglycaemia and increased admission in intensive care nurseries. While weight loss prior to pregnancy and limiting weight gain in pregnancy are desirable and may lower some of these risks, the success of the lifestyle interventions to achieve weight loss is limited. The last article in this section is on understanding the drivers of dietary behaviour before and during pregnancy in industrialized countries. The authors have reviewed 34 studies and found that the key factors influencing the positive dietary behaviour of the woman is her desire for optimal maternal and foetal outcome and appropriate and timely advice from the healthcare personnel. Persuasive communication methods, changing food environment to make healthy food choices easier and automated daily feedback on adherence to dietary recommendations may help to make the task easier.

The publication is timely and will benefit all those interested in improving health and nutrition care of adolescent girls.

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