Title: Independent and joint association of obesity trajectory with caesarean section (C-scetion) birth in the pathway of poor cardiometabolic health among Australian adolescents

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Background: The current literature suggests that C-section birth increases the risk of obesity in a child's life course. We aimed to explore the association between C-sections and cardiometabolic risk of children and how much of this association is being influenced by obesity trajectory in a nationally representative birth cohort of "Longitudinal Study of Australian Children (LSAC)" .

Methods: Children born in 2004 were followed up for Body Mass Index (BMI) from age two to ten years and linked with cardio-metabolic data measured at age twelve. Three BMI trajectory groups were identified using latent class growth modelling among the LSAC birth cohort. A continuous Metabolic syndrome (CMetS) score was computed from age, sex, and pubertal development standardized residual Z-score of waist circumference, systolic blood pressure, blood glucose, the inverse of high-density lipoprotein, and triglyceride. Multiple chained augmented linear regression analyses present the Standard Mean Difference (SMD) of CMetS's z-score by the mode of births with an interaction of BMI trajectory groups.

Result: Of 1874 study children, 30% were delivered by C-section, mean age (SD) was 11.50 (0.50) years and 49% were female. Three BMI trajectory groups were identified 5% of them followed persistently high BMI. Against the vaginal cohort, the CMetS Z-score was 0.51 units higher with C-section births in a final adjusted model without BMI interaction. The CMetS Z-score increased linearly with increasing obesity status irrespective of the mode of birth. Furthermore, the CMetS Z-score showed a statistical association with high BMI trajectory for the C-section cohort (1.69; 95% CI: 0.49 to 2.90; P<0.01) but not with the vaginal birth cohort (0.33; 95% CI: -0.42 to 1.08 P=0.28)

Conclusion: C-sections showed an independent association with poor cardiometabolic biomarkers in early adolescence, further augmented by the persistent obesity trajectory in childhood. Judicial use of C-sections is necessary to reduce overt metabolic diseases in adulthood.

Biography: Tahmina is a medical graduate with a PhD in Public Health. She is currently working as a research fellow at the University of Queensland. Prior to joining her PhD program, she had fourteen years of experience in obstetric patient management and implementation research in maternal and child health care in Bangladesh. She has around 18 publications that have been cited over 500 times, and her publication h-index is 9.

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