

Analysis of gestational weight gain using nationally representative data

Research snapshot¹

Adequate gestational weight gain (GWG) is an important measure of maternal health during pregnancy; inadequate GWG is associated with negative maternal and newborn outcomes. To fill the gap in our understanding of GWG levels and the burdens of inadequate and excessive GWG in resource-limited settings, the authors of this paper computed GWG estimates across time using Demographic and Health Survey (DHS) data. A hierarchical model was developed to estimate the mean total GWG and associated uncertainty ranges (URs) for a full-term pregnancy

for each country in 2015. Year and country-level covariates were used as predictors and variable selection was guided by the model fit. The final model included year, geographic area, mean adult female body mass index, gross domestic product per capita and total fertility rate.

Gestational weight data was available for 67 of the total 137 low- and middle-income countries (LMICs) in the DHS programme. Latin America and Caribbean (11.80 kg (95% UR: 6.18, 17.41)) and Central Europe, Eastern Europe and Central Asia (11.19 kg (95% UR: 6.16, 16.21)) were the regions with the highest GWG estimates. Sub-Saharan Africa (6.64 kg (95% UR: 3.39, 9.88)) and North Africa and the Middle East (6.80 kg (95% UR: 3.17, 10.43)) were the regions with the lowest estimates. With the exception of Latin America and Caribbean, all regions were below the minimum GWG recommendation for normal-weight women with sub-Saharan Africa and North Africa and the Middle East estimated to meet less than 60% of the minimum recommendation. National estimates for each country show

low levels of GWG in Africa, especially in sub-Saharan Africa. The five countries with the lowest GWG estimates were Congo, Afghanistan, Rwanda, Central African Republic and the Democratic Republic of the Congo. Sixteen LMICs met the minimum GWG recommendation for normal-weight women and only one country (Brazil: 14.0kg (95% UR: 2.8, 25.1)) met the minimum recommendation for underweight women.

Results reveal a large burden of inadequate GWG in most LMIC countries and regions. Gestational weight gain is strongly dependent on modifiable maternal factors including nutritional status, dietary intake, physical activity and pre-existing health conditions. Interventions promoting adequate GWG have the potential to improve maternal, foetal and child outcomes across the world.

¹ Wang, D, Wang M, Darling, A M, Perumal, N, Liu, E, Danaei, G and Fawzi W W (2020) Gestational weight gain in low-income and middle-income countries: a modelling analysis using nationally representative data. *BMJ global health*, 5(11), e003423. <https://doi.org/10.1136/bmjgh-2020-003423>

Rates and risk factors for preterm birth and low birthweight Research snapshot¹

Preterm birth² continues to be a major public health problem contributing to 75% of neonatal mortality worldwide. Low birth weight (LBW) is an important but imperfect surrogate for prematurity when the accurate assessment of gestational age is not possible. While there is an overlap between preterm birth and LBW newborns, those that are both premature and LBW are at the highest risk of adverse neonatal outcomes. Understanding the epidemiology of preterm birth and LBW is important for the prevention and improved care of at risk newborns.

The authors³ conducted data analyses using the Global Network's population-based registry of pregnant women and their babies in rural communities in six low- and middle-income countries (Democratic Republic of the Congo, Kenya, Zambia, Guatemala, India (two sites) and

Pakistan). Trained study staff enrolled all pregnant women in the study catchment area as early as possible during pregnancy and conducted follow-up visits shortly after delivery and at 42 days after delivery. The authors analysed the rates of preterm births, LBW and a combination of preterm birth and LBW from January 2014 to December 2018 and LBW and the risk factors associated with these outcomes.

A total of 272,192 live births were included in the analysis. The overall preterm birth rate was 12.6% (ranging from 8.6% in India/Belagavi site to 21.8% in Pakistan), the overall LBW rate was 13.6% (ranging from 2.7% in Kenya to 21.4% in Pakistan) and the overall rate of both preterm birth and LBW was 5.5% (ranging from 1.2% in Kenya to 11.0% in Pakistan). Risk factors associated with preterm birth, LBW and the combination

were similar across sites and included nulliparity [RR - 1.27 (95% CI 1.21-1.33)], maternal age under 20 years [RR 1.41 (95% CI 1.32-1.49)], severe antenatal haemorrhage [RR 5.18 95% CI 4.44-6.04], hypertensive disorders [RR 2.74 (95% CI - 1.21-1.33)] and one to three antenatal visits versus four or more [RR 1.68 (95% CI 1.55-1.83)].

The results show that younger, nulliparous women with limited access to antenatal care services are at higher risk of preterm births and need more attention to prevent prematurity and LBW.

¹ Pusdekar, Y V, Patel, A B, Kurhe, K G, Bhargava, S R, Thorsten, V, Garces, A and al (2020) Rates and risk factors for preterm birth and low birthweight in the global network sites in six low- and low middle-income countries. *Reproductive health*, 17(Suppl 3), 187. <https://doi.org/10.1186/s12978-020-01029-z>
² Birth before 37 weeks of pregnancy
³ Birth weight below 2500g

Relapse and post-discharge body composition of children treated for acute malnutrition using a simplified, combined protocol Research snapshot¹

Severe and moderate acute malnutrition (SAM and MAM) affect more than 50 million children worldwide. Despite gains in the treatment of SAM in the past decade, there is no current consensus on how best to manage children with MAM. Furthermore, treatment coverage for SAM and MAM remains low, with 80% of children not accessing care. One option to overcome these challenges is to combine the treatment of SAM and MAM into one simplified protocol.

The ComPAS trial (Combined Protocol for Acute Malnutrition Study) was a single-blinded, cluster randomised, controlled, non-inferiority trial to compare the recovery rates of a combined

protocol for uncomplicated SAM and MAM in children 6-59 months of age against standard treatment.² The combined protocol used a simplified dosage and provided two sachets of ready to use therapeutic food (RUTF) per day for SAM³ children and one sachet per day for MAM⁴ children. Results demonstrate non-inferior recovery of the combined protocol compared to standard care. To further inform policy, this study assessed the four months post-discharge outcomes of SAM and MAM children treated in Kenya.

The study recruited 850 children from 12 clinics (six using combined and six using standard protocol). The study found children treated with the combined protocol had similar an-

thropometry, fat-free mass, fat mass, skinfold thickness z-scores and frequency of common illnesses four months post-discharge compared to the standard protocol. Mean subscapular skinfold z-scores were close to the global norm and there was also no significant difference in the odds of relapse between protocols.

These results add further evidence that a combined protocol is as effective as standard care. This is an important finding as a simplified, combined approach could stretch existing resources further and treat more children.

¹ Lelijveld N, Musyoki E, Adongo W S, Mayberry A, Jonathan CW, Opondo C, Kerac M, Bailey J (2021) Relapse and post-discharge body composition of children treated for acute malnutrition using a simplified, combined protocol: A nested cohort from the ComPAS RCT. *PLOS ONE*. 2021;16(2): e0245477. <https://doi.org/10.1371/journal.pone.0245477>
² Weight-based dose of RUTF for children with SAM and RUSF for children with MAM.
³ Defined as MUAC < 11.5cm and/or mild or moderate oedema.
⁴ Defined as MUAC between 11.5 and <12.5cm and no oedema.