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Parity and maternal age have been shown to increase the risk of adverse neonatal outcomes, such as intrauterine growth restriction (IUGR), prematurity, and mortality [1-5]. Nulliparity may confer risk through complications during childbirth such as obstructed labor [6], whereas high parity has been linked to increased risk of hypertension, placenta previa, and uterine rupture [4]. Several studies have hypothesized that in young mothers, maternal-fetal competition for nutrients and/or the mother's incomplete physical growth might contribute to adverse neonatal outcomes [7]. Older women experience an increase in the incidence of congenital abnormalities as well as maternal morbidities such as hypertension and

as below the 10th percentile of the U.S. 1991 reference distribution described by Alexander and colleagues [38]. We used this reference distribution, as this is the most commonly used and cited, allowing for comparability with other studies. Preterm was defined as below 37 completed weeks of gestation. The method of gestational age measurement for each study is listed in Table 1. We also created the composite outcome variables term-appropriate for-gestational-age (AGA), term-SGA, preterm-AGA, and preterm-SGA, with term-AGA as the reference. When mortality information was available, neonatal mortality was defined as death within 28 days, and infant mortality as death within 365 days. All newborns were included in the analysis examining the out-

nulliparous/age 18-<35 (aOR 1.51, 95% CI: 1.39-1.64) had increased risk of SGA. The confidence interval for these two associations overlapped slightly. The parity ≥3/age 18-<35 category did not have an adverse association. Instead, we saw a small but statistically significant protective effect against SGA (aOR: 0.92, 95% CI 0.86-0.99). The parity ≥3/age ≥35 category had no significant association.

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Almost all exposure categories had statistically significant associations with preterm birth. The nulliparous/age <18 category had the highest risk of preterm birth (aOR: 1.52, 95% CI 1.40-1.66), followed by parity ≥3/age ≥35 (aOR 1.43, 95% CI: 1.21-1.69) and parity ≥3/age 18-<35 (aOR: 1.20, 95% CI: 1.06-1.35) (see Table 3).

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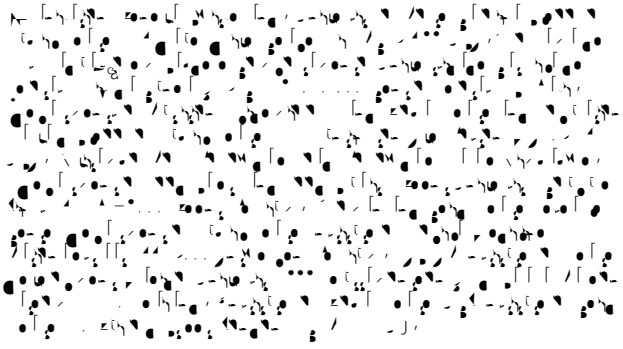
Term-SGA. Nulliparous/age <18 mothers had a significant association with term-SGA (aOR: 1.81, 95% CI: 1.51-2.16). Nulliparous/age 18-<35 had slightly weaker but significant associations. The parity ≥3/age 18-<35 women had a significant protective association (aOR: 0.88, 95% CI: 0.81-0.96), and parity ≥3/age ≥35 had no association. *Preterm-AGA*. Nulliparous/age <18 had the

young age; women who were both nulliparous and age <18 consistently experienced the highest risk. Young age appeared to drive preterm risk, as seen in the statistically significantly different preterm associations comparing nulliparous women age <18 to age 18-<35. When we conducted sensitivity analyses using a lower age cut-off of 16, the associations increased in magnitude, particularly for preterm outcomes. Although the change in associations were not statistically significant, this may be driven by sample size, as we had a very low prevalence of women under age 16. Several studies have reported increased rates of preterm delivery and/or neonatal mortality among young mothers [3,5,39,40]. A plausible biological explanation may be incomplete maternal physical growth and relative malnutrition, which is related to the mother's gynecological age rather than chronological age [3]. In a U.S. study, growing adolescents accrued more fat and more weight during their pregnancy, but their infants weighed less at birth and their mothers retained more weight postpartum [41]. In resource-constrained settings, adolescent mothers may have an even larger nutritional burden; a st([4oo)-3619stsptoohe;her

Our analysis yielded mixed results on the association between parity ≥3 and adverse outcomes. We saw no adverse association with SGA, and a weak association with preterm. WWhen we conducted sensitivity analyses by raising the parity cut-off to ≥

and less so with miscarriages, we would expect mothers to endure similar nutritional demand during pregnancy as a live birth. Furthermore, by not taking into account miscarriages and stillbirths as outcomes, we may be underestimating the negative impact of some of the risk factors. There is existing literature that links nulliparity with stillbirth and intrapartum-related neonatal mortality [6,61,62].



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