Ideal cardiovascular health and women’s health characteristics in middle aged women free of diagnosed cardiovascular disease. The Polish Norwegian study

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Background: Women’s reproductive history has been recognized as a cardiovascular risk factor and risk enhancer.

Purpose: To compare ideal cardiovascular health (CVH) metrics across multiple women’s health conditions: parity, breastfeeding, hormonal contraceptive use and menopause status.

Methods: Cross-sectional data were collected from 7034 women, age 45 to 64 years, free of CVD. Using the 7 American Heart Association criteria, we defined CVH as ideal, intermediate or poor if 6–7, 3–5 or 0–2 ideal metrics were met, respectively. We calculated the CVH score, ranging from 7 (all metrics poor) to 21 (all metrics ideal). Reproductive history was self-reported. We categorized parity in four categories (0, 1–2, 3–4 and 5 or more births). We used general linear models and proportional odds regression models to adjust for covariates and to assess mediation by age, education, income and urban/rural residence.

Results: Women had a mean age of 55.1 years (SD 5.3). The prevalence of nulliparity was 8.4%, menopause 75.49% and ever use of oral contraceptives, 12.8%. Among non-nulliparous, 88.9% breastfed for a median cumulative duration of 10 months. The prevalence of traditional CVD risk factors was high (obesity 27.6%, uncontrolled blood pressure 39.8%, poor diet 38%). The prevalence of ideal, intermediate and poor CVH was 0.1%, 41.7% and 58.2% respectively. None of the participants had all 7 cardiovascular health metrics at ideal level. Average CVH score was 14.1 (SD 1.9). The prevalence of intermediate CVH scores was highest among nulliparous (27.6%) and decreased with parity (26.72%, 19.87% and 11.42%). There was a statistically significant gradient in mean age-adjusted CVH score across the four parity categories, increasing from multiparous of 5 or more births (13.36, 95% CI 13.13–13.60) to nulliparous (14.24, 95% CI 14.08–14.39). Nulliparous women had 2.9 times greater odds (95% CI 1.91–4.54) of higher CVH scores than multiparous of 5 or more births, after adjusting for age, menopause and use of hormonal contraceptives. Similarly, for women who gave birth 1–2 times and 3–4 times, the adjusted relative odds were 2.65 (95% CI 1.78–3.94) and 1.80 (95% CI 1.2–2.71), respectively. Further adjustment for education, rural residence, personal and/or household finance status attenuated these relations, suggesting a mediating effect. Among non-nulliparous, neither ever breastfeeding or cumulative duration of breastfeeding were associated with CVH scores. Premenopausal women had 1.56 (95% CI 1.33–1.84) times higher odds of higher CVH scores than postmenopausal ones, after full adjustment.

Conclusion: Women’s reproductive history, particularly parity is associated with middle-age cardiovascular health, and part of the association is explained by socio-economic status. These findings suggest the need for early screening and intensification of preventive cardiology interventions in women, especially among vulnerable subgroups.