

## Adverse childhood or adult experiences and gynecological symptoms

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Context: Bilateral oophorectomy has commonly been performed in conjunction with hysterectomy even in women without a clear ovarian indication; however, oophorectomy may have long-term deleterious consequences.

Objective: To better understand this surgical practice from the woman's perspective.

Methods: Population-based case-control study in Olmsted County, Minnesota (USA). From an established population-based cohort study, we sampled 128 women who underwent bilateral oophorectomy before age 46 years for a non-cancerous condition in 1988-2007 (cases) and 128 age-matched controls ( $\pm 1$  year). Information about adverse experiences was abstracted from the medical records dating back to age 15 years or earlier archived in the Rochester Epidemiology Project (REP) records-linkage system. Adverse childhood experiences were summarized using the Adverse Childhood Experience (ACE) score.

Results: We observed an association of bilateral oophorectomy performed before age 46 years with verbal or emotional abuse, physical abuse, any abuse, substance abuse in the household, and with an ACE score  $\geq 1$  experienced before age 19 years (OR=3.23; 95% CI, 1.73-6.02;  $p < 0.001$ ). In women who underwent the oophorectomy before age 40 years, we also observed a strong association with physical abuse experienced during adulthood (OR=4.33; 95% CI, 1.23-15.21;  $p = 0.02$ ). Several of the associations were higher in women who underwent oophorectomy at a younger age ( $< 40$  years) and in women without an ovarian indication for the surgery. None of the psychosocial or medical variables explored as potential confounders or intervening variables changed the results noticeably.

Conclusions: Women who suffered adverse childhood experiences or adult abuse are at increased risk of undergoing bilateral oophorectomy before menopause. We suggest that the association may be explained by a series of biological, emotional, and psychodynamic mechanisms.

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