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### Ten-year mortality after a breast cancer diagnosis in women with severe mental illness: a Danish population-based cohort study

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**Background & Aim:** Although breast cancer is the leading cause of cancer death in women worldwide, research has not yet shown whether higher mortality after a breast cancer diagnosis contributes to the life-expectancy gap of 15 years in women with severe mental illness (SMI) (i.e., schizophrenia and bipolar affective disorder). We aimed to study the all-cause and breast-cancer-specific ten-year mortality for women with SMI compared to women without SMI, while taking age, tumor stage of the breast cancer and comorbidity into account.

**Method:** We evaluated all-cause and breast-cancer-specific ten-year mortality rate ratios (MRRs) for women with SMI compared to those without, using data from nationwide registers in Denmark.

**Results:** The cohort consisted of 105,448 women with incident breast cancer of whom 1,106 had SMI. Within 10 years after a breast cancer diagnosis, 648 (58.6%) women with SMI and 41,771 (40.0%) women without SMI died, which corresponded to a ten-year MRR of 1.60 (95% CI: 1.48-1.73). The MRR was lower for women with bipolar affective disorder (MRR: 1.39, 95% CI: 1.22-1.59) than for women with schizophrenia (MRR: 1.73, 95% CI: 1.57-1.90). The estimates did not change much after adjusting for tumor stage and comorbidity. The risk of a breast-cancer-specific death was 38% higher (MRR: 1.38, 95% CI: 1.24-1.54) for women with SMI compared to those without.

**Conclusions:** Women with SMI have a high risk of dying within ten years after a breast cancer diagnosis compared to women without SMI. More information is needed to determine which factors could explain this excess mortality, such as differences between women with and without SMI in access to diagnostics and screening, provision of care for breast cancer or physical comorbidity, health-seeking behavior or adherence to treatments.