Author's response to reviews

Title: The influence of nativity and neighborhoods on breast cancer stage at diagnosis and survival among California Hispanic women

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Dear Editorial office:

We appreciate the opportunity to submit our manuscript for publication at the BMC Cancer.

In the United States (US), foreign-born Hispanics tend to live in socioeconomic conditions typically associated with later stage of breast cancer diagnosis, yet they have lower breast cancer mortality rates than their US-born counterparts. To understand what these nativity differentials in breast cancer may mean with regards to outcomes in Hispanic women, we set out to document the breast survival patterns among Hispanics by nativity and explore whether survival patterns are influenced by neighborhood factors, using population-based cancer registry data enhanced with complete nativity data and linked to residential data on census block-group level socioeconomic status (SES) and ethnic enclave (neighborhoods with high proportions of Hispanics or Hispanic immigrants). In addition, to inform the observed patterns and further explore the role of the Hispanic paradox on breast cancer outcomes, we examined the prevalence of health care access and risk factor measures potentially associated with survival in the female Hispanic population of California.

We found that despite the tendency for later stage at diagnosis of breast cancer and greater likelihood of living in lower SES neighborhoods and Hispanic enclaves, foreign-born Hispanics had better survival after breast cancer than US-born Hispanics, even after consideration of stage at diagnosis, initial treatment, demographic, other tumor characteristics and neighborhood factors, including SES and ethnic enclave, findings consistent with the Hispanic paradox. In addition, both nativity and neighborhood SES were independently associated with stage at diagnosis and survival after breast cancer. We also found that neighborhood SES was associated with stage at diagnosis, independently and jointly with ethnic enclave. While residence in lower SES neighborhoods and ethnic enclaves was associated with being diagnosed at an advanced stage of disease, and lower SES was associated with poorer survival, the effect of nativity differed between stage at diagnosis and survival.

Our analyses extend the findings from a recent study that found foreign-born Hispanics to have a higher likelihood of late stage disease at breast cancer diagnosis and lower likelihood of receiving guideline-concordant treatment compared to US-born Hispanics, and are the first to consider the associations between both nativity and neighborhood factors with survival after breast cancer in US Hispanic women.

We thank you in advance for your consideration.

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