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Disparities in breast cancer in Puerto Rico and among Hispanics, Non-Hispanic whites and Non-Hispanics blacks in the United States, 1992–2004

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To the editor

Breast cancer (BC) is the most common cancer type and the most common cause of cancer death among women in Puerto Rico (PR) (1). Historical studies suggest a lower incidence of BC in PR as compared to the United States (US) (2, 3); however, limited data exists regarding the current burden of this malignancy in PR and how it compares with other racial/ethnic groups. This study assessed the age-standardized incidence and mortality rates of BC in PR and compared them to those of Hispanics (USH), Non-Hispanic whites (NHW), and Non-Hispanic blacks (NHB) in the US for the period 1992–2004.

Incident and death cases of invasive BC (ICD-O-3: C50.0-C50.9) were obtained from the PR Central Cancer Registry (PRCCR) (4, 5) and the Surveillance, Epidemiology and End

Results Program (SEER) (6, 7), respectively. Annual age-standardized [ASR(world)] incidence and mortality rates (per 100,000) were calculated for each racial/ethnic group using the direct method (world population). The annual percent change (APC) of the ASR(World) was estimated using the Joinpoint Regression Program from SEER. To assess differences in BC incidence and mortality rates between PR as compared to other racial/ethnic groups, the ASR(World) were grouped from 2000–2004. Then, the standardized rate ratio (SRR) was estimated with its 95% confidence interval.

Although the BC incidence ASR(World) in PR was lower than in other racial/ethnic groups in the US, the incidence of BC increased during the study period in PR (APC=1.41%) ($p<0.05$), whereas it remained stable for USH (APC=0.08%), NHW (−0.18%) and NHB (−0.40%) ($p>0.05$) (Figure 1 and Table 1). Compared to women in PR, USH, NHW, and NHB women had a 14%, 88%, and 57% higher risk of BC, respectively (Table 1). Meanwhile, women in PR had similar BC mortality ASR(World) than USH women ($p>0.05$); whereas, NHW and NHB women had a 56% and a 98% higher risk of dying from BC than women in PR, respectively. In addition to these differences, a decreasing trend in BC mortality was observed in all US racial/ethnic groups (Figure 1), while trends for PR remained stable ($p>0.05$).

The lower burden of BC in PR than in the continental US population is consistent with previous studies (2, 3). Nonetheless, the similar age-adjusted mortality rates of BC among USH and PR suggests a potential health disparity between these groups, as the incidence of the disease was in fact lower in PR. It could be hypothesized that this disparity may be the result of differences in access to treatment between these groups. However, further research is warranted.

No study has assessed the reasons for the increasing trend of BC incidence in PR, although our data is consistent with trends observed since the 1950's (1, 3). The stabilization of the incidence trends in all racial/ethnic groups in the US is also consistent with previous reports, although their reasons are not yet well understood (8, 9). Even though an increase in BC mortality in PR was reported from 1950–1990 (3), it seems to have stabilized since then. This is supported by previous reports of the PRCCR (1). Meanwhile, although in the US (8) it is hypothesized that the decline in BC mortality is due to improvements in access to early detection and treatment services, this decline is not yet observed in PR.

Overall, the observed incidence and mortality trends from BC in PR might also be explained by factors such as acculturation, changes in lifestyle, screening practices, genetic factors, and access to care. As previously described for Puerto Ricans and Hispanics (3, 10, 11), these populations have acquired western habits that mirror those of industrialized nations, which might be responsible for the increasing trend in incidence rates. These changing lifestyles include sedentary lifestyle, dietary habits, higher obesity rates, declines in parity and a younger age at menarche (1, 3, 11, 12). Furthermore, increases in the use of mammography screening in PR during the last decades could account for the increase in incidence in this population (1, 3, 13, 14), although its impact on BC mortality has not yet been observed.

This study provides updated information on the burden of breast cancer in PR; essential data for the assessment of research priorities and public health efforts in this population. We observed an overall lower risk of BC in PR as compared to NHW, NHB and USH in the US, although similarities exist in the risk of death from BC between USH and PR women. Nonetheless, BC is a public health priority among women in PR as its incidence rates continue to increase, in contrast to stable trends in the US. As suggested since 1975 (2), further studies are warranted to understand cancer differences between PR and the US. These studies should focus on determining risk factors for BC occurrence in PR, as well as the impact on cancer trends of the differences in the occurrence of biological and social health determinants associated with BC between PR and other racial/ethnic groups in the US. Differences in the prevalence of genetic factors related to BC risk between these populations should also be evaluated by relevant studies, given the genetic admixture of Puerto Ricans (15).

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Figure 1.
Trends for BC incidence and mortality ASR(Global) rates (per 100,000) for PR, NHW, NHB and USH, 1992–2004.

Table 1

ASR(World) for incidence and mortality (x 100,000) for BC during 2000–2004.

	ASR (World)				SRR ^a (95% CI)		
	PR	USH	NHW	NHB	USH vs. PR ^b	NHW vs. PR ^b	NHB vs. PR ^b
Incidence	68.8	78.6	129.2	108.2	1.14 (1.10, 1.19)	1.88 (1.83, 1.93)	1.57 (1.52, 1.63)
Mortality	18.6	17.5	29.1	37.0	0.94 (0.88, 1.00)	1.56 (1.47, 1.6)	1.98 (1.87, 2.11)

^a Estimated Standardized Rate Ratio with 95% confidence interval between parentheses.

^b Reference group.