# Mortality Following Hip Fracture in Chinese, Japanese, and Filipina Women

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We previously published data from Kaiser Permanente Northern California demonstrating that mortality following hip fracture varied by race/ethnicity, with 1-year mortality rates following hip fracture found to be one-third lower in Asian women (15.6%) compared with white women (23.6%).[1] These findings are of interest, given that Asians make up the fastest growing racial subgroup within the United States over the past 10 years.[2] Furthermore, according to the 2010 US Census, California contributes 32.1% of the US Asian population.[2] Asian Americans, however, form a heterogeneous population of East, South, and Southeast Asians where selected health outcomes may vary substantially,[3] and differentiating these minority populations may be important for understanding potential health disparities.



Although previous studies have examined bone mineral density and fracture risk among selected Asian subgroups in California,[4-6] the extent to which postfracture health outcomes vary between these ethnic populations has not been examined. In this report, we conducted additional analyses within our prior study[1] to describe the distribution of the 3 largest Asian ethnic subgroups among northern Californian women experiencing hip fracture and their corresponding rates of early rehospitalization and 1-year mortality post hip fracture.

Among 615 Asian women who experienced hip fracture between 2000 and 2010,[1] we used available ethnic subgroup data to ascertain those of Chinese, Japanese, and Filipina ethnicity and conducted additional chart record validation of ethnicity for all women initially identified as Filipina and for 9% of Chinese and Japanese women with mixed ethnic origin data or inconsistent surnames. These efforts classified 172 (28%) Chinese, 153 (24.9%) Japanese, and 119 (19.4%) Filipina women, accounting for 72.2% (444 of 615) of women with hip fracture identified as Asian.

By ethnic subgroup (**Table**), Chinese and Japanese women were similar in age, whereas Filipina women were slightly younger and more likely to be younger than 85 years ($P$ <.05) at the time of hip fracture. Filipina women also had greater comorbidity (comorbidity index ≥3; $P$ <.05, as previously classified)[1] compared with the other 2 subgroups. Nonsignificant differences in rehospitalization rates within 30 days of hospital discharge were noted, with a possible trend toward lower rates of early rehospitalization among Japanese women ($P$ = .06) versus Filipina. One-year overall mortality rates following hip fracture were similar (Chinese: 14.0%; Japanese: 15.0%; and Filipina: 14.3%), and mortality risk did not differ significantly by group when adjusted for age, comorbidity, fracture type, and history of fracture.

In summary, the low 1-year mortality rate among Asian women following hip fracture was reflected similarly across the 3 Asian

**TABLE.** Baseline Characteristics and Outcomes Following Hip Fracture, by Asian Ethnic Female Subgroup[a]

| | Chinese (n = 172) | Japanese (n = 153) | Filipina (n = 119) |
|---|---|---|---|
| Age group, years | | | [b] |
| 65-74 | 25.0% | 18.3% | 23.5% |
| 75-84 | 40.1% | 47.7% | 55.5% |
| ≥85 | 34.9% | 34.0% | 21.0% |
| Age, years: mean ± SD | 80.8 ± 7.8 | 81.3 ± 6.5 | 78.6 ± 6.7[b,c] |
| Comorbidity Index Score | | | [b,c] |
| Score 0 | 37.8% | 38.6% | 26.9% |
| Score 1-2 | 36.6% | 38.6% | 27.7% |
| Score ≥3 | 25.6% | 22.9% | 45.4% |
| Hip fracture subtype | | | |
| Femoral neck | 65.1% | 60.1% | 59.7% |
| Pertrochanteric | 34.9% | 39.9% | 40.3% |
| Prior fracture history | 30.2% | 31.4% | 25.2% |
| 30-day rehospitalization[d] | 11.6% | 6.7% | 13.6% |
| 1-year (all cause) mortality | 14.0% | 15.0% | 14.3% |

SD indicates standard deviation.
[a]The floating $P$ value denotes comparisons of age and comorbidity by race. There is an overall difference represented by women in the column. We further compared by age ≥85 versus lower and comorbidity score ≥3 or lower.
[b]$P$ <.05 versus Chinese women.
[c]$P$ <.05 versus Japanese women.
[d]Thirty-day rehospitalization rates were based on the denominator of women alive following the index hospitalization (≥98% in each subgroup).

subgroups in the same healthcare setting, accounting for nearly three-fourths of the Asian hip fracture cohort. Although the number of women in each subgroup was relatively small, thus limiting the generalizability of our conclusions, this is one of the first studies to classify ethnic origin among US Asians experiencing hip fracture and their subsequent morbidity and mortality outcome. Future studies should be conducted in larger, diverse US populations of Asian race to determine the extent to which Asian ethnic subgroups vary with regard to key osteoporosis-related health outcomes.

## TAKE-AWAY POINTS

- Asians are one of the fastest growing racial subgroups within the United States and constitute a relatively heterogeneous population.
- Asian American women have lower mortality following hip fracture compared with white women, but differences by ethnic origin are unknown.
- This study demonstrates similarly low 1-year mortality rates following hip fracture among Chinese, Japanese, and Filipina women, who make up nearly three-fourths of the Asian hip fracture population examined.
- Mortality risk did not differ significantly by ethnic subgroup, even after adjusting for differences in age and comorbidity burden.
- These findings support further efforts to examine similarities and differences in osteoporosis-related outcomes in larger Asian American populations.

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