**RESEARCH LETTERS**

**Trends and Disparities in Total-Body Skin Examination: Evaluating the National Health Interview Survey, 2000-2010**

Improvements in melanoma mortality have not occurred across all ethnic groups. Minorities are diagnosed with melanoma at a more advanced stage and, as a result, face worse prognoses. Total-body skin examination (TBSE) may help identify early skin cancers, an important predictor of survival. Few studies have examined differences in TBSE rates among different populations, and changes in survey methodology have hindered prior efforts to analyze trends. Herein, we analyze newly released nationally representative survey data to examine trends and predictors of TBSE.

**Methods.** Data were drawn from the 2000 and 2010 National Health Interview Survey (NHIS), an annual survey of US adults. Data are publicly available; institutional review board approval was not required. The outcome variable considered was whether individuals reported receiving a TBSE within the past year. Rates and trends in TBSE were examined, and a multivariate logistic model examining predictors of TBSE was constructed.

Demographic covariates included in the model were age, sex, ethnicity, marital status, region, and having an income below the poverty level. Factors potentially impacting health-seeking behavior included were a prior personal or family history of skin cancer, education level, employment status, health insurance status, and whether an individual reported delaying health care in the past year because of cost. The frequencies with which individuals reported wearing a hat and using sunscreen when in the sun for over an hour were included, as was the reported effect on one’s skin after an hour of sun exposure. Self-reported health status, body mass index, physical activity, as well as smoking and alcohol use were also included.

The NHIS uses a stratified multistage sample design. Estimates were weighted to construct nationally representative estimates, and multivariate logistic analysis of pooled data was conducted (Statata software, version 11.2; StataCorp LP).

**Results.** Statistically significant increases were noted in overall national TBSE screening rates between 2000 and 2010. In 2000, 7.6% of the population reported undergoing a TBSE within the past year. In 2010, that figure climbed to 10.6%, a statistically significant increase ($P < .001$). In both years and among all ethnic groups, women were slightly more likely to report having a recent TBSE. In 2000, 8.1% of women had a TBSE within the past year, but only 7.0% of men did ($P < .01$). That screening gap had narrowed by 2010, with 11.0% of women and 10.2% of men reporting recent screening ($P = .08$).

Ethnic discrepancies were found in TBSE rates (Table). A statistically significant increase in TBSE rates occurred only for non-Hispanic whites. Adjusted results from the pooled multivariate analysis revealed that, all else equal, non-Hispanic blacks, non-Hispanic Asians, and Hispanics were less likely than non-Hispanic whites to have undergone TBSE within the past year. The odds that non-Hispanic whites had undergone recent TBSE were 43% greater than non-Hispanic blacks, twice that of Hispanics, and 2.5 times greater than non-Hispanic Asians.

Rates for TBSE increased with age and education level. Compared with those aged 18 to 29 years, the odds of those aged 30 to 39 years having had a TBSE in the past year were 30% greater. The odds of those in their 40s, 50s, 60s, and 70s having a recent TBSE were, respectively, 1.7, 2.5, 3.4, and 4.4 times greater than those aged 18 to 29 years. A similar dose-response relationship was observed with increasing education level. The odds of those with a high school diploma having had a TBSE within the past year were 60% greater than those with an eighth grade education or less. Those of individuals attending some college, 4 years of college, and 5 or more years of college were, respectively, 2.3, 2.9, and 3.2 times greater than the odds of having a TBSE among those with an eighth grade education or less.

**Comment.** National TBSE rates remain fairly low but increased between 2000 and 2010. Adjusted results showed that non-Hispanic blacks, non-Hispanic Asians, and Hispanics were less likely than non-Hispanic whites to have undergone TBSE within the past year. Melanoma incidence has increased across most ethnic groups, though the increase in TBSE rates noted occurred only among non-Hispanic whites. Minorities may therefore be at an increasingly higher comparative risk for delayed diagnoses and higher mortality. Since results indicated a dose-response relationship between education and TBSE rates, health literacy may play a critical role in individuals’ perceived risk of skin cancer and, consequently, their health-seeking behavior.

Disparities in melanoma are multifactorial. Differential anatomic presentation of pigmented lesions, health beliefs, and the health care system have all likely contributed to the current differential prognoses facing minorities. Yet TBSE appears to improve outcomes.
cancer rates are truly increasing across most ethnic groups, it is not unreasonable to conclude so too should screening rates. To ameliorate screening rate disparities, improved outreach to minority communities may be warranted.

**Stephen M. Amrock, SM**
Ahou Meydani, MD

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**Author Affiliations:** Department of Dermatology (Dr Meydani), New York University School of Medicine (Mr Amrock), New York.

**Correspondence:** Mr Amrock, New York University School of Medicine, 560 First Ave, TH-100, New York, NY 10016 (stephen.amrock@med.nyu.edu).

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