

## LETTER TO THE EDITOR

### Breast Cancer in Nuns

To the Editor:

An understanding of the etiologic factors in cancer has been aided by the epidemiologic study of different occupation groups. For more than two centuries, members of religious orders have been the subject of inquiries to assess whether characteristics common to religious life have a role in causing or preventing cancer. The differences among the groups are evaluated in light of the marital environment prevailing in each population; namely, the presence or absence of sexual and reproductive factors associated with the single versus married state. Several reports from the past (1) have indicated that in both sexes, the unmarried have higher death rates from all causes than the married. As an indicator of the environmental effect of marital status on cancer mortality, epidemiologic study of nuns would seem ideal.

Several studies have shown that Catholic nuns have a different mortality experience than women of similar age in the general population. A review of the literature with regard to Catholic religious orders, with special reference to the cancer experience of nuns, reveals a number of studies, some of which date back to the early 18th century.

Morin Doody et al. (2) had a unique opportunity to evaluate mortality patterns of nuns identified in an occupational study of nearly 145,000 radiologic technologists (73% female). A total of 1103 women were classified as nuns based on their titles of "Sister" or "SR." Their mortality experience was compared to other female radiologic technologists and to white U.S. females.

Compared with the general population, the mortality experience of nuns was favorable and reflected the "healthy worker effect" commonly seen in occupational studies. Patterns observed for breast and cervical cancer possibly indicate differences in reproductive and sexual activities associated with belonging to a religious order. The possibility of a radiation-related excess for breast cancer among nuns certified before 1940 cannot be completely discounted, although there was no dose certified. When their mortality experience was compared with other radiologic technologists, the influence of lifestyle factors was not apparent.

Meurer et al. (3) concluded that a 20% greater risk of breast cancer compared to U.S. females agrees with previous studies based on general population comparisons, and is consistent with an increased risk associated with nulliparity. The lack of an increased overall risk for nuns compared to other technologists may reflect similarities in reproductive risk factors, since women in the labor force are more likely than nonworking women to be nulliparous or to delay childbearing, as well as socioeconomic and educational status. Fraumeni et al. (4) showed that the sisters showed a significant excess in mortality from breast cancer over the age span 40 to 74 years and had consistently higher rates than controls for each age group older than 39 years.

A summary of this research indicates that further, updated research on religious sisters and the incidence of breast cancer would be in order.

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#### REFERENCES

1. Berkson J. Mortality and marital status. Reflections on the derivation of etiology from statistics. *Am J Public Health* 1962;52:1318-29.
2. Morin Doody M, Mandel JS, Liner MS, et al. Mortality among Catholic nuns certified as radiologic technologists. *Am J Indust Med* 2000;37:339-48.
3. Meurer J, McDermott RJ, Malloy MJ. An exploratory study of health practices of American Catholic nuns. *Health Values* 1990;14:9-17.
4. Fraumeni JF, Lloyd JW, Smith EM, Wagoner JK. Cancer mortality among nuns: role of marital status in etiology of neoplastic disease in women. *J Natl Cancer Inst* 1969;42:455-68.