

CANCER MORTALITY AND RELIGIOUS PREFERENCE

A SUGGESTED METHOD IN RESEARCH

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PURPOSE OF THE STUDY

This paper presents a new approach to research method in mortality by religion.¹ It is hypothesized that religious preference among decedents may be obtained directly from the funeral homes which furnish this and other items of information appearing on death certificates, and that findings from this source would be comparable to those based on data recorded on the death certificates, supplemented by estimates of the religious distribution of persons cremated or buried in Protestant or nonsectarian cemeteries. Mortality statistics on malignant neoplasms are used for illustration. Because of data limitations, no attempt will be made to interpret the observed differences in cancer mortality, although some general inferences with respect to ethnic background and socio-economic status are suggested.

BACKGROUND OF THE STUDY

Antoine Déparieux published a study of differences in mortality between religious (monks and nuns) and secular persons in the mid-eighteenth century.² Most of the earlier works are of limited value inasmuch as mortality differentials are expressed in terms of pro-

portionate mortality or crude death rates, with no standardization for age. This is so mainly because no adequate data were available on the religious distribution of the general population or of the decedents.

More recently, religious distribution in the general population of some localities has been secured through sample survey or other methods. However, few researchers have attempted to take advantage of these data by ascertaining comparable religious preference of decedents, so that mortality rates for a defined population could be computed and standardized to age or/and other factors. In the case of cancer mortality, only two such studies may be cited, those of MacMahon³ and of Newill.⁴ Both studies dealt with cancer mortality among white residents of New York City. Data on religious distribution in the general population were obtained from a sample survey undertaken by the Health Insurance Plan of Greater New York. The distribution of religious preference of white decedents was derived from the item "religious affiliation of cemetery of burial," as recorded in the death certificate, and was adjusted to the estimates made in a previous study of ethnic and religious distribution of deaths from leukemia in the same city.⁵ These estimates were based on a comparison of death certificates and hospital records with respect to recorded information on religious preference of white decedents. Decedents buried in Catholic and Jewish cemeteries were almost exclusively Catholic and Jewish, while the percentage distribution of those buried in Protestant and nonsectarian cemeteries and of those cremated was as follows: Protestant, 63; Catholic, 23; Jewish, 8; other or no religious affiliation, 7.

We thought that the religious preference of decedents could perhaps be determined more directly by communicating with funeral homes. Data on cancer mortality in Baltimore for 1959 were analyzed in order to determine if Newill's findings could be confirmed in another city. In view of the frequent references that we will make to Newill's study, a brief summary of its results is in order.

Newill's data covered the period 1953-1958. Death rates were computed for the population aged 45 and over, without further age adjustment within this group. There was no substantial variation

in total death rates from cancer among the three major religious faiths. However, striking differences for individual cancer sites were observed between Jewish and non-Jewish groups. In Jewish males, cancers of the buccal cavity and pharynx, esophagus, rectum, respiratory system, and genital organs were less common than they were in Catholic or Protestant men. In Jewish females, cancer of the uterine cervix was extremely rare. Certain sites of malignancy exhibited a higher rate in both sexes of the Jewish group. These included the large intestine, kidney, lymphatic and hematopoietic tissues, and leukemia. In Jewish females, cancers of the digestive system, respiratory system, breast, and ovary were also common.

Differences in mortality rates were also noticed between Catholic and Protestant groups. Catholic males had a high rate for cancer of the buccal cavity and pharynx but low rates for malignancies of the respiratory system, several sites in the digestive organs, the genital and urinary organs, and the lymphatic and hematopoietic tissues. Catholic females had low rates for cancers of the esophagus, breast, and genital and urinary organs, but a high rate for rectal malignancy.

DATA AND METHODS

This study is based on 1,754 deaths from cancer in the white resident population of Baltimore City (1,476) and Baltimore County (278) in 1959. Cancer deaths among nonwhites were excluded, since few were Catholic and perhaps none were Jewish. The primary source of information on religious preference of each decedent was the funeral home where the funeral service was held. This method is direct in that it attempts to obtain the firsthand information from the original source, since it is the funeral home which reports the name of cemetery of burial and its location (city and state) as they appear in the death certificate. Furthermore, this approach eliminates the necessity for estimating the distribution among the three major faiths of interments in Protestant and non-sectarian cemeteries and of cremations. In fact, this study was originally designed to analyze cancer mortality by Protestant denomina-

tion, in addition to major religious groups. Since data on denominations are generally not given on death certificates and are often incomplete in hospital records, funeral homes naturally are the next best source for such information after the decedents' relatives or friends. This report is confined to findings on the three major faiths (Protestant, Catholic, Jewish).

A letter was sent to 152 undertakers in Maryland and other states requesting religious identification of decedents for whom they had provided funeral services. They were asked to enter each decedent's specific church preference on an attached list, and to provide the name and address of the clergyman who presided at the funeral service. If the clergyman was provided by the funeral home, they were asked to indicate this. Before sending letters to the funeral homes in Maryland, the co-operation of the Maryland State Funeral Directors' Association was sought. A personal visit was arranged with each of the 13 undertakers in Baltimore who had buried more than 30 of the decedents covered in this study.

The response rate was 97 per cent by number of deaths and 95 per cent by number of funeral homes. In about 12 per cent of all returned cases, the undertaker was either unable to furnish the specific religious information requested, or listed only the name and address of the clergyman, or indicated that the clergyman (name and address given) was provided by the funeral home. Further attempts were made to determine the religious affiliation of these cases and those for whom no response was received by calling the churches or clergymen, if the names were known, by reviewing hospital records

TABLE I. MAJOR RELIGIOUS PREFERENCE OF WHITE POPULATION, BALTIMORE URBANIZED AREA, 1957, BY SEX

<i>Sex</i>	<i>Total No. All Faiths</i>	<i>Catholic</i>		<i>Jewish</i>		<i>Protestant</i>		<i>Other</i>	
		<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Both sexes	2,663	872	33.0	221	8.0	1,478	56.0	92	3.0
Male	1,340	454	34.0	112	8.0	723	54.0	51	4.0
Female	1,323	418	32.0	109	8.0	755	57.0	41	3.0

Source: Special tabulation from The Third Omnibus Survey of the Baltimore Market, 1957, Sidney Hollander Associates, Baltimore, Maryland.

TABLE 2. DEATHS FROM CANCER IN WHITE RESIDENTS OF BALTIMORE CITY AND BALTIMORE COUNTY, 1959, BY MAJOR RELIGIOUS PREFERENCE

Sex	Total No. All Faiths	Catholic		Jewish		Protestant		Greek Orthodox		Unknown	
		No.	%	No.	%	No.	%	No.	%	No.	%
Both sexes	1,754	596	34.0	149	8.5	898	51.2	19	1.1	92	5.2
Male	933	325	34.8	80	8.6	460	49.3	14	1.5	54	5.8
Female	821	271	33.0	69	8.4	438	53.4	5	0.6	38	4.6

of the decedents, and by checking the obituary columns in Baltimore newspapers covering the study period. The final number of religiously unidentified cases was 92, or 5.2 per cent of the total 1,754 deaths originally collected.

The population estimates used for computing mortality rates were derived from the Third Omnibus Survey of the Baltimore Market,⁶ a probability sample survey of 1,000 families in the Urbanized Area of Baltimore conducted by the Sidney Hollander Associates in the summer of 1957. These families were composed of 3,589 persons, of whom 2,663 were white. Through a special tabulation by religion, sex, and age, it was possible to estimate the number and distribution of the white population in Baltimore City and Baltimore County. Although the population of the Baltimore Urbanized Area (including Baltimore City and parts of three adjacent counties) is not strictly coincident with that of Baltimore City and Baltimore County combined, the slight differences in number and composition should not have affected the validity of using these estimates as denominators. For example, the white population of the Baltimore Urbanized Area is about 5 per cent less than that of Baltimore City and Baltimore County combined, being 94.3 per cent for males and 94.6 per cent for females.

Mortality differentials for various sites of cancer by major religious preference are expressed for each sex as ratios of age-adjusted death rates to the corresponding rates for all faiths combined. The standard population used for age adjustment was the total urban white population of the United States in 1950. Tests of statistical

significance are not applied to the results of this study because they are of doubtful reliability where non-sampling errors (biases) are potentially important.

The religious distribution of the three major faiths in the white population of the Baltimore Urbanized Area is shown in Table 1. Table 2 gives a similar distribution for total cancer deaths of the white resident population of Baltimore City and Baltimore County. There is general agreement between these two sets of data.

MORTALITY BY MAJOR RELIGIOUS GROUP

For all cancers combined, there was a mild deficiency of deaths among Jewish males and a slight mortality excess among Jewish females (Table 3). Variations with respect to specific sites were more marked. In Jewish men, cancers of the respiratory system were rare. Other less frequent sites of malignancy were the intestine and rectum, and leukemia. In contrast, there was a high rate for cancers of the urinary organs. In general, these findings are similar to those of Newill, although he found intestinal cancer and leukemia to be common among Jewish males.

Comparisons of mortality rates in Catholic and Protestant males showed the rates to be higher in the former for cancers of the buccal cavity and pharynx, the digestive system (with the exception of the intestine and rectum), and the respiratory organs. However, Catholic men had lower rates for cancer of the lymphatic and hematopoietic tissues (excluding leukemia). These Catholic-Protestant differences are, with the particular exception of respiratory malignancy, not much different from Newill's data.

Variations in cancer mortality rates among females of the three religious groups were less marked than those for males. Jewish females had the highest mortality from cancers of the lymphatic and hematopoietic tissues (excluding leukemia), of the entire digestive system (except the esophagus), and of "other and unspecified sites." On the other hand, their mortality rate was low for cancer of the cervix and corpus uteri. Protestant women had the lowest rate for rectal cancer but the highest rate for cancers of the esophagus and

TABLE 3. RATIOS OF AGE-ADJUSTED* DEATH RATES FOR CANCER OF VARIOUS SITES IN WHITE RESIDENT POPULATION, BALTIMORE CITY AND BALTIMORE COUNTY, 1959, BY MAJOR RELIGIOUS PREFERENCE AND SEX

Site	Male				Female			
	Total No. All Faiths**	Catholic No. Ratio	Jewish No. Ratio	Protestant No. Ratio	Total No. All Faiths**	Catholic No. Ratio	Jewish No. Ratio	Protestant No. Ratio
All sites	933	325 1.15	80 0.76	460 0.96	821	271 1.03	69 1.23	438 1.02
Buccal cavity and pharynx 140-148	25	13 1.86	1 0.36	7 0.47	10	4 1.28	0 0	5 0.97
Digestive organs and peritoneum 150-159	294	97 1.09	29 0.84	143 0.95	251	86 1.06	25 1.47	127 0.99
esophagus 150	30	14 1.57	1 0.28	14 0.87	8	2 0.79	0 0	6 1.46
stomach 151	51	19 1.22	7 1.18	21 0.82	45	11 0.74	5 1.80	23 1.02
intestine, except rectum 152-153	82	20 0.81	4 0.42	46 1.14	111	41 1.17	12 1.44	55 0.94
rectum 154	41	13 1.07	4 0.89	23 1.12	26	10 1.15	3 1.73	11 0.86
liver, peritoneum, etc. 155-159	90	31 1.12	13 1.22	39 0.79	61	22 1.11	5 1.37	32 1.04
Respiratory system 160-165	267	106 1.35	12 0.44	135 0.95	34	9 0.86	3 1.46	19 0.98
trachea, bronchus, and lung 162-163	243	101 1.42	10 0.41	119 0.91	32	8 0.80	3 1.54	18 0.99
nose, larynx, etc. 160-161; 164-165	24	5 0.65	2 0.71	16 1.29	2	1 1.67	0 0	1 0.67
Breast 170	2	0 0	0 0	2 2.00	176	60 1.05	13 1.15	95 1.07
Genital organs 171-179	91	32 1.16	3 0.26	50 1.13	145	51 1.13	8 0.70	75 0.96
cervix, corpus, etc. 171-174					94	34 1.18	3 0.33	48 0.94
ovary, vulva, etc. 175-176					51	17 1.06	5 1.32	27 1.02
prostate 177	81	28 1.16	2 0.20	46 1.15				
testis, scrotum, etc. 178-179	10	4 1.07	1 0.93	4 0.93				
Urinary organs 180-181	74	30 1.21	13 1.55	26 0.76	33	5 0.46	2 0.84	24 1.44
Other and unspecified sites 190-199	108	25 0.76	17 1.41	57 1.00	95	32 1.08	8 1.25	51 0.98
Leukemia and aleukemia 204	32	12 1.16	2 0.56	17 1.00	32	10 0.94	2 0.95	19 1.16
Lymphatic and hematopoietic tissues, except leukemia and aleukemia 200-203; 205	40	10 0.80	3 0.74	23 1.10	45	14 0.98	8 2.38	23 0.98

* All religious faiths = 1.00; rates entering the ratios are adjusted for age to total urban population, U.S. white, 1950.
 ** Includes Greek Orthodox and unknown.

the urinary organs. With slight variations, all of these findings corroborate those of Newill's study. However, the observed higher rate for leukemia among Jewish females, as presented in Newill's data, has not been substantiated by the results of this analysis.

DISCUSSION

The results of this study in obtaining religious data on decedents directly from funeral homes are encouraging. It was possible to ascertain religious status by major faith for 85 per cent of the decedents, and nearly 90 per cent of specific denominational preference among the Protestants was thus determined. Further exploration in the use of this potential source of information for research would be fruitful.

Findings in this study with respect to cancer mortality among white residents in Baltimore by the three major religious faiths generally agree with those previously reported on the New York City white population, with the exception of mortality from leukemia. An adequate interpretation of the differences observed in these religious groups is difficult, although some suggestive inferences could be made. The various religious groups, with dissimilar ethnic background and socio-economic status (hence genetic factors, educational attainment, marital status, attitudes toward medical care, living habits, etc.) have, according to some studies, been linked to the frequency distribution of different types of cancer. Other possible correlates remain to be explored or confirmed. Before observed mortality differences could be attributed to religious preference *per se*, it would be necessary to conduct a much more extensive investigation to identify interrelated pertinent variables. If differences with respect to religious preference still exist after such characteristics have been taken into account, the next step would be the detailed examination of any environmental or other factors that may differentiate one religious group from another. It might then be possible to determine whether these religious correlates have anything to do with the frequency distribution of various types of malignancy.

Although it is not within the scope of this paper, it seems that it

would be especially advantageous to analyze differences in cancer mortality by Protestant denominations because of significant variations among them in ethnic background, religious prescriptions and proscriptions, and certain other characteristics. These differences may have some bearing on a person's habitual ways of living, which are acquired early in childhood through the same process of socialization that determines the life patterns of the members of any major religious group.

SUMMARY

Data on 1,754 cancer deaths in the white resident population in Baltimore City and Baltimore County in 1959 have been analyzed to test the idea of obtaining religious information on the decedents directly from funeral homes, and to confirm previous findings as to cancer mortality differences among the three major religious groups.

Findings on mortality differences between Jewish and non-Jewish and between Protestant and Catholic groups are consistent with those in New York City reported by Newill.

The favorable response from the funeral homes and the usable religious data on decedents which they furnish indicate the potential value of using these establishments as a new source of information for mortality research.

Further systematic exploration of cancer mortality differences among major religious groups and Protestant denominations is suggested.

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