Hysterectomy Use: The Correspondence between Self-Reports and Hospital Records

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ABSTRACT

Studies of the relationship between hysterectomy use and sociodemographic factors tend to use self-reported data. In the current study, data were collected from a representative sample of US women who have been prospectively followed since 1971. Hysterectomy status was obtained by self-report and from hospital records. Although these two measures of hysterectomy were highly related, more women reported hysterectomy than could be confirmed by hospital records. The two measures showed similar associations between several obstetric and demographic characteristics and hysterectomy status, suggesting that the use of self-reported hysterectomy data does not bias analyses of potentially associated factors. (*Am J Public Health.* 1994;84:1653–1655)

Introduction

Hysterectomy is the most commonly performed nonobstetric inpatient surgical procedure among women in the United States.[1] Several studies have attempted to identify factors associated with a greater likelihood of receiving this surgery in order to explain the variation in hysterectomy rates among industrialized countries.[2–8] The results have found hysterectomy to be associated with increasing age, lower education and family incomes, higher parity, and previous miscarriages. With the exception of one British study,[7] these studies have used self-reported hysterectomy information and could be affected by differential recall biases.

The purpose of this paper is to estimate the bias associated with self-report in analyses of hysterectomy. Using data from a prospective cohort study representative of the US population, we examined the correspondence between self-reported hysterectomy and hysterectomy confirmed by hospital records. We used hysterectomy rates and the association between hysterectomy and a number of socioeconomic and obstetric factors to estimate the potential bias introduced by the use of self-report.

Methods

Data were taken from the Epidemiologic Followup Study to the First National Health and Nutrition Examination Survey, a prospective investigation of 14 407 subjects 25 to 74 years of age who completed the First National Health and Nutrition Examination Survey (NHANES I) between 1971 and 1975. Follow-ups have been conducted from 1982 through 1984, in 1986, and in 1987.[9–11] We limited our analysis to Black or White women who, at the baseline survey, were between 25 and 34 years of age and reported having their womb. Women in this age group are unlikely to have had prior hysterectomy.[12] Of the 2104 Black and White women in the targeted age group, 2037 had intact uteri at baseline.

During the follow-up interviews, respondents were asked whether they had their womb and were requested to recount all hospital stays. Women were classified as reporting a hysterectomy if they reported the removal of their womb or if uterine cancer, hysterectomy (partial or full), or uterine removal was named as one of the causes of a hospitalization.

All hospitals named in the interview were contacted, if consent had been obtained, to obtain discharge summaries for all stays occurring during the interview period. Women for whom a hospital discharge summary was obtained listing hysterectomy in the procedures section (*International Classification of Diseases,* 9th edition, codes 68.3 through 68.7) were characterized as having a hospital-confirmed hysterectomy.

Agreement between the two hysterectomy measures was summarized by the kappa statistic.[13] Chi-square tests or *t* tests were used to compare the demographic and obstetric characteristics of women by hysterectomy status. Finally, proportional hazards models of hysterectomy involving each measure were estimated; these models incorporated covariates identified in previous research while accounting for differing lengths of follow-up among respondents.[14]

Results

Four hundred fifty-two respondents reported having had a hysterectomy, while 301 women had hospital-confirmed hysterectomies. Hysterectomy was coded on the hospital records of 3 women who did not report a hysterectomy. Conversely, 154 women reported having had a hysterectomy that could not be confirmed,

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TABLE 1—Differences in Average Characteristics of Women with Different Levels of Hysterectomy-Reporting Completeness

	Hospital-Confirmed Hysterectomy (n = 301)	Reported Hysterectomy (n = 452)	No Hysterectomy (n = 1582)
Age at baseline, y	29.9	29.9	29.1**
Age at hysterectomy, y	38.4	37.5*	. . .
Live births, no.	3.0	3.0	2.8
Miscarriages, no.	0.6	0.6	0.4**
Body mass index, cm/g^2	24.4	24.2	24.0
Black, %	14.6	16.6	14.2
Education level, %			
Less than high school	33	32	22**
High school graduate	54	52	46
At least some college	13	16	31
Residence, %			
Central city	25.3	28.8	32.4
Suburb	32.2	31.0	32.0
Rural	42.5	40.3	35.6

*$P < .01$ (compared with hospital-confirmed hysterectomies).
**$P < .01$ (compared with all reported hysterectomies).

TABLE 2—Predictive Model of Receipt of Hysterectomy Using Two Different Methods of Outcome Classification

	Relative Risk (95% Confidence Interval)	
	Hospital-Confirmed Hysterectomy	Reported Hysterectomy
Age at baseline (per year)	1.07 (1.03, 1.12)	1.09 (1.05, 1.12)
Education level		
Less than high school	1.20 (0.92, 1.55)	1.16 (0.93, 1.43)
High school graduate	1.0[a] . . .	1.0[a] . . .
At least some college	0.41 (0.29, 0.59)	0.51 (0.39, 0.66)
Race		
White	1.0[a] . . .	1.0[a] . . .
Black	0.92 (0.65, 1.31)	1.07 (0.82, 1.40)
Residence		
Central city	1.0[a] . . .	1.0[a] . . .
Suburb	1.36 (0.99, 1.86)	1.14 (0.90, 1.44)
Rural	1.37 (1.02, 1.84)	1.18 (0.93, 1.49)
Parity[b]		
0–1	1.0[a] . . .	1.0[a] . . .
2–3	1.03 (0.73, 1.46)	1.12 (0.84, 1.48)
4+	0.97 (0.66, 1.43)	0.98 (0.72, 1.34)
Miscarriages[c]		
0–1	1.0[a] . . .	1.0[a] . . .
2+	1.24 (0.86, 1.80)	1.28 (0.95, 1.73)
Body mass index[d]		
<28	1.0[a] . . .	1.0[a] . . .
28+	0.97 (0.73, 1.30)	0.94 (0.74, 1.20)

[a]Referent group.
[b]Data were missing for 193 subjects.
[c]Data were missing for 172 subjects.
[d]Weight in kilograms divided by height in square meters.

although validation was not possible for 33 of these subjects because of problems in obtaining hospital records.

Comparisons between reported hysterectomies and hospital-confirmed hysterectomies yielded a kappa statistic of 0.75, which signifies fairly good agreement. However, because hospital records were obtained only if a hospital stay was reported, the kappa statistic primarily reflects the agreement between not reporting a hysterectomy and failure to obtain a hospital record of hysterectomy. Conversely, only 298 (66%) of the 452 reported hysterectomies could be confirmed.

Women reported their age at hysterectomy to be about 1 year younger than indicated by hospital records (Table 1). No other significant differences between the two groups of women categorized as having a hysterectomy were found. Compared with women who had either reported or hospital-confirmed hysterectomies, women who did not have a hysterectomy were younger at baseline, had fewer miscarriages, and were more likely to have had at least some college experience.

Multivariate models that used self-reported or hospital-confirmed cases as the outcome variable yielded very similar results (Table 2). Only age and high education were significantly associated with hysterectomy by both classification methods, while urban area of residence was related to hospital-confirmed, but not self-reported, hysterectomy.

Discussion

Most investigations of the relationship between hysterectomy use and demographic and obstetric characteristics have relied on self-reported information.[2,6,8] This study was able to incorporate information obtained through both self-report and hospital records. Twenty-five percent of women in the cohort reported ever having had a hysterectomy, while only 18% of the cohort had either a hospital-confirmed hysterectomy during follow-up or a self-reported hysterectomy prior to the baseline study. Estimates of rates based on hospital records in this study probably underestimate the true rates, since obtaining records was dependent on the respondents' ability to remember hospitalization information correctly, on obtaining consent for the record review, on securing the correct address for the hospitals, and on procuring assistance from hospital personnel in locating and summarizing all hospital stays.

Regardless of the source of information, women who had had hysterectomies were found to be older at baseline and to have less formal education than women with intact uteri. Only one variable, location of residence, was found to have a different relationship to hysterectomy by data source. Given the number of variables investigated, this difference is slight.

The similarity of analysis results may not apply to responses from women older than those included in this study or when the recall period is longer. We conclude from these data that associations obtained with self-reported hysterectomy information are not unduly biased. Although high reliability of hysterectomy self-reporting had been found previously,[15] the validity had not been established. Given these findings, it appears that investigations of the sociobehavioral characteristics associated with hysterectomy use will obtain valid results using either data collection method. □

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Recruitment Activities and Sociodemographic Factors That Predict Attendance at a Mammographic Screening Program

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ABSTRACT

A random sample of 2266 women aged 50 to 69 years was used to investigate factors that predict attendance at a free Australian mammographic screening program. The most important predictor was receipt of a personal invitation letter. A letter that included an appointment time increased attendance 132-fold initially and decreased to 20 times baseline after 14 days. A letter that did not include an appointment time increased attendance 12-fold, and a second letter to nonattenders increased attendance approximately 13-fold. Attendance declined with increasing distance from the program and with increases in the percentage of non-English speaking women in a neighborhood, but was higher in areas of higher socioeconomic status. (*Am J Public Health.* 1994;84:1655–1658)

Introduction

Women's adherence to recommended mammography screening schedules often is suboptimal,[1] and development of strategies that maximize participation is necessary for mammography to achieve its potential for breast cancer control.[2] We evaluated the impact of recruitment strategies and sociodemographic factors on attendance at the Essendon Breast X-ray Program, a pilot project conducted in the state of Victoria, Australia.

Methods

Target Population and Recruitment Strategies

During a 2-year period, the Essendon program offered free screening and consequential assessment to 43 771 women aged 50 to 69 years. These women lived in any of 34 surrounding postcode areas and were listed on the electoral roll,[3] for which enrollment is nominally compulsory.[4]

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