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Assessing the validity of self-reported breast cancer screening coverage in the Belgian Health Interview survey

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Introduction

Worldwide, breast cancer is the leading cause of cancer-related deaths among females. In Belgium, it is the first female cancer in terms of incidence (more than a third of cancers) and the leading cause of premature death in women. Hence, reducing deaths through early diagnosis is an important objective for the health authorities. Screening for breast cancer is generally recognized as being effective in reducing mortality from this cancer. Studies have demonstrated the effectiveness of mammography screening for breast cancer, especially for women aged 50 to 69 years. According to the international guidelines, it is advisable to measure the proportion of the target population covered by screening. Due to the time and the costs related to medical records abstraction, information on breast cancer screening is often based on self-reports in population-sample surveys. Self-reported data may however be inaccurate due to recall errors and biases, impeding valid inference. The validity of self-report can be verified by comparing this information with a trusted measure or "gold standard"

such as health insurance data. This study investigates first the validity of self-report information on breast cancer screening in the Belgian Health interview survey (BHIS), using the Belgian compulsory Health Insurance (HI) data as gold standard and second, the selection bias due to non-participation.

Methods

Individual data of the Belgian Health Interview Survey 2008 (BHIS2008) were linked to HI data covering more than 99% of the population. Only women aged 50−69 years who responded to the question related to the breast cancer screening in the BHIS2008 "having had a mammogram in the last two years" were considered ($n = 1009$). This indicator measures the rate of eligible women undergoing mammography. In the HI data related to the same women, the fact that women had a reimbursement for a mammography within the last two years was used as golden standard. The breast cancer screening coverage rates from both data sources were compared. The sensitivity, specificity and predictive values of the self-reported indicator were estimated for which HI data served as were golden standard. We also assessed the selection bias by comparing the screening coverage in the BHIS2008 sample with that of a completely random sample of HI data (representing 1/40 of the Belgian population).

Results

Mammographic coverage rate in the BHIS2008 sample was estimated to be 73% through the self-reported information and 63% through the HI information. From the random sample, the coverage rate was 61.9%. The sensitivity of reporting a mammography was high (93.9%) while the specificity was moderate (62%) for whole Belgium. However, within the 37.9% of women reporting

to have had a mammography in the past 2 years, but for which no confirmation could be found in the HI dataset, the almost the half (17%) had indeed undergone a mammography in the last 3 years. This is a typical "telescoping bias", when people perceive events as being more recent than they actually were. The positive and negative predictive values were respectively 81% and 85%. The difference between HI and random sample coverage rates was small (1.5%), and there was not significant evidence of selection bias.

Conclusions

The mammographic coverage rate in women aged 50–69 years is overestimated in the BHIS2008. This is in line with expectations since such information can be subject to social desirability and/or telescopic bias. There was almost no selection bias. Although the validity of breast cancer screening in the BHIS2008 is moderate, BHIS remains an added value for the breast cancer screening in the general population since it offers the opportunity to link with plenty of other parameters, like the health and the socioeconomic status as well as other health (preventive) behaviours.