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Good agreement between self-report and centralized hospitalizations data for arthritis-related surgeries

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Abstract

Objectives: To examine the level of agreement between self-reported and hospital administration records of arthritis-related surgeries for two large samples of community-dwelling older women in Australia, born between 1921−1926 and 1946−1951.

Study Design and Setting: Self-report survey data from the Australian Longitudinal Study on Women's Health was linked to inpatient hospital data from the New South Wales Admitted Patient Data Collection. Levels of agreement were compared using Cohen's kappa, sensitivity, specificity, and positive and negative predictive values. Reasons for false positives were examined.

Results: This study found good agreement (kappa >0.70; sensitivity and specificity >0.80) between self-report and hospitalizations data for arthritis-related surgeries.

Conclusions: This study provides new evidence for good agreement between self-reported health survey data and administrative records of arthritis-related joint procedures, and supports the use of self-report surveys in epidemiological studies of joint procedures where administrative data are either not available or not readily accessible, or where more extensive contextual information is needed. The use of health survey data in conjunction with administrative data has an important role to play in public health planning and policy.

Keywords: Hip; Knee; Health surveys; Medical record linkage; Arthroplasty; Replacement; Self-report

1. Introduction

Studies of the epidemiology and population burden of arthritis and arthritis-related joint surgery most commonly use data from health surveys and administrative databases [1−4]. Although administrative databases are often considered the gold standard for some measures (such as hospitalization), health surveys are a valuable epidemiological tool. They can be administered at relatively low cost to a large number of participants [5,6], they can more readily identify conditions that may be inaccurately reported in administrative data (such as chronic diseases like arthritis) [3,7−9], and they can ask targeted questions beyond the minimum data set required for administrative purposes. However, the propensity for survey inaccuracy is a weakness that necessitates further measurement and increased understanding.

Numerous studies have assessed the accuracy of self-report health data and factors associated with degree of

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Conflicts of interest: None.

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What is new?

Key findings

- This study found good agreement (kappa >0.70; sensitivity and specificity >0.80) between self-report and hospitalizations data on arthritis-related procedures for two large cohorts of community-dwelling older women. Discrepancies between the two data sources were mainly owing to inaccurate recall of timing of procedures, rather than absence of the procedure.

What this adds to what was known?

- The study met an acknowledged need to verify the accuracy of self-reported joint procedures, an often-cited limitation in epidemiological studies.

What is the implication and what should change now?

- This study supports the use of self-report surveys in epidemiological studies of joint procedures where administrative data are not available or not readily accessible, or where more extensive contextual information is needed.
- Researchers should be confident of the veracity of self-reported data on arthritis-related procedures.

concordance or agreement with ''gold standards'' such as hospital registries by comparing self-recall of health-related events with administrative records and physician adjudication [1−4,6,7,10]. Agreement has been found to vary with the nature of the condition or procedure, method of data collection, length of time between the survey and the event [1,2,4,5,9,11−13], variability of contact time with health practitioners or services, and the individual level of understanding about the diagnosis or condition [13,14]. Agreement can also vary according to the characteristics of the respondents, including age, cognitive capacity, reported medications, and the presence of comorbid conditions including depression [2−4,7,9,15,16]. Inaccurate medical diagnoses, and incorrect or inconsistent coding of medical records have been found to be contributing factors toward discordance in health administrative data [2,3,8,14,15,17−20]. Moreover, accuracy of self-reported conditions can vary across data collection points for repeated surveys. For example, Beckett et al. [5] found that only half the respondents who reported arthritis at one survey subsequently reported arthritis when surveyed at a later date.

The few previous studies of arthritis-related surgeries have found good agreement between self-report and administrative data [21−28]. Parimi et al. [24] found high concordance overall between self-report of surgery and the reason for surgery (osteoarthritis vs. fracture), whereas Lui et al. [23] found 99.8% agreement between self-reported hip and knee procedures and hospital administrative data records among 28,524 Scottish women. However, both total knee and hip replacements have been rapidly increasing over time in countries such as the United States [29] and Australia [22]; and worldwide, the rates of knee arthroplasty have increased faster than hip replacements [30]. Although administrative databases can monitor these trends, at least in countries with good centralized registries, only self-report can provide detail, such as the ongoing quality of life and individual health outcomes for those undergoing surgeries, needed to inform public health planning and policy. It is often not possible to survey the relevant sample of people identified through administrative data owing to the ethical procedures surrounding these resources. So, researchers undertaking survey research into the context around arthritis-related surgery need to be confident that there is good concordance between self-report and administrative records of these procedures, and to understand why discrepancies may occur.

Arthritis-related hip and/or knee surgery is managed in hospitals [22,31,32], so comprehensive verification of self-reported diagnoses of arthritis-related procedures is only possible through the examination of individual medical records, or linkage with hospital admissions administration data [33]. The level of coding errors and inaccuracies in hospital administrative data have been found to be quite low [26,28], with a previous study finding near-perfect agreement for hip replacement (kappa = 1.00), and good-to-excellent coding quality for major diagnoses, major and minor procedures [28], meaning that this data source can generally be considered a ''gold standard.'' Women suffer a higher proportion of the burden of disease relating to arthritis and musculoskeletal disease [21,22,25], and gendered differences exist in how health is perceived and experienced, so the focus of this study in a sample of women is appropriate.

This study sought to examine agreement between self-reported arthritis-related joint surgeries and administrative records of hospital diagnoses and procedures, using self-report survey data from the Australian Longitudinal Women's Health Survey (ALSWH) linked to inpatient hospital data from the New South Wales (NSW) Admitted Patient Data Collection (APDC) from July 2000 to December 2008.

2. Methods

2.1. Self-report: the ALSWH

The ALSWH is a national longitudinal study that has been investigating the health and well-being of Australian women since 1996. Self-report surveys have been conducted every 3 years with more than 40,000 Australian women