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Cardiovascular disease and musculoskeletal disorder labels in family practice acted as markers of physical health severity

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Abstract

Objective: Family practitioner diagnostic labels applied in consultation provide a signpost for treatment and management. Yet, it is unknown whether each label reflects the health of the respective patient group.

Study Design and Setting: Consultation records of 7,799 patients aged 50 years and older from six family practices were linked to a cross-sectional baseline health survey. Associations between six mutually exclusive cardiovascular disease and nine mutually exclusive musculoskeletal disorder categories, and physical health severity as measured by the Short Form-12 questionnaire were examined.

Results: There were 2,447 (31.4%) cardiovascular disease and 3,321 (42.6%) musculoskeletal disorder consulters. The mean physical health scores ranged from 38.38 (95% confidence interval [CI]: 37.8−39.0) for *hypertension* to the poorest score of health 28.98 (95% CI: 27.5−30.5) for consulters with *heart failure*, whereas in the musculoskeletal disorder group, scores ranged from 44.85 (95% CI: 42.2−47.5) for *soft tissue disorder* to 28.79 (95% CI: 26.8−30.8) for consulters with *inflammatory polyarthropathy* (trend $P < 0.001$). This trend in the association between diagnostic categories and physical health severity within both spectrums remained after adjustment for confounders.

Conclusion: Specific diagnostic labels for selected chronic illness indicate the severity of physical health for the corresponding consulting population.

Keywords: Cardiovascular diseases; MSK diseases; Diagnosis; Quality of life; Epidemiological studies

1. Introduction

A visit to family practice is marked by the application of a label summarizing the main presenting complaint. This label, usually attributed by the family practitioner (FP), determines the course of health care management or treatment [1]. For example, routine chronic disease clinics that monitor individual patients with conditions, such as diabetes [2] and ischemic heart disease [3], have their respective labels that provide key signposts for the health care management pathway of the patient [4].

The presenting complaint of the patient can fall within a wide spectrum of health, including nonspecific and self-limiting symptoms such as pain or infections or specific disorders such as anxiety or depression. Complaints can also relate to specific chronic conditions, including a number of potentially interlinking *diseases* affecting the same system (e.g., cardiovascular), a series of unrelated *disorders* (musculoskeletal), or spectrums which can include both disease and disorder.

The variation in the use of labels [5] can be dependent on both patient-related [6] and clinician-related [7] factors. Patients may present at different points as a result of changes in their health and clinical histories that may be specific or complex. Clinician choices can relate to (1) integration of complex information from a variety of sources, (2) imperfect or incomplete information, (3) the presence of uncertainty, and (4) complex interactions between the clinician and the patient [8]. In the end, the final choice of label at one time point could therefore relate to any stage along a disease or disorder spectrum (between onset and end stage). These labels in themselves will be either a ‘‘working diagnosis’’ (e.g., symptom-related only) or a definitive ‘‘diagnostic label’’ based on a combination of clinical assessment and further information, such as investigation. However, whether the choice of this label within the same

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What is new?

Key finding
Diagnostic labels applied in family practice can indicate the severity of physical health within categories of cardiovascular disease and musculoskeletal disorder.

What this adds to what was known?
Although diagnostic variability has been shown to exist in family practice, our results support the concept that groups of consulters with the same diagnostic label as recorded in clinical encounters could be grouped into exclusive measures of severity.

What is the implication, what should change now?
Our findings show the usefulness of routinely collected morbidity data as implicit indicators of severity. This method shows the potential for epidemiological construction of populations using morbidity data, the clinical implication supporting the potential for testing this method in clinical decision-making research.

spectrum of ''diagnostic'' possibilities reflects the severity as measured by health is unknown.

Chronic disease or disorder spectrums may comprise symptoms and pathologies that are related or unrelated to each other [9]. For example, in musculoskeletal disorders, diagnostic labels can range from pain symptoms that are regional [10] or widespread [11] to pathology that is localized such as osteoarthritis [12] or to more systemic conditions such as rheumatoid arthritis [13]. Notably the pain symptoms could either be self-limiting [14] or be part of an established chronic disease such as osteoarthritis [15]. In contrast, within cardiovascular diseases, current evidence has more clearly focused on a linked pathway in relation to development of this disease spectrum [16,17]. Therefore, hypertension may be a preceding risk factor to myocardial infarction, which in turn can progress to end-stage heart failure in some individuals [18]. Yet, even within this spectrum, it is not clear as to how the stages of disease development can affect the patient population and whether this reflects the associated severity of general health [19].

From this current perspective of clinical encounters in family practice, we have taken two examples of chronic illness spectrums to identify two distinct questions: (1) do different labels that form the stages of a *disease* spectrum, that is, cardiovascular disease, reflect the associated health severity of the corresponding patient group, and (2) do different labels that form the stages of a *disorder* spectrum, that is, musculoskeletal disorder, also reflect the associated health severity of the corresponding patient group.

2. Methods

2.1. Design

Using a consultation-survey linkage data set from six family practices, the study hypotheses were investigated in the population aged 50 years and older. These participants had completed a cross-sectional survey that was subsequently linked with consent to their clinical records for the 2 years before the baseline survey. The study was given local research ethics committee approval.

2.2. Study population

The study practices are part of the North Staffordshire General Practice Research Network, and the practices routinely use the Read classification [20] to code clinical encounters with their patients. The registered practice populations aged 50 years and older had taken part in a larger general population survey [21], which included a subsurvey focusing on joint pain symptoms in the population. The larger survey was sent to 20,293 people and 13,986 (68.9%) responded, with nonresponders showing similar characteristics to previous surveys [22]. From these responders, 10,432 consented to the review of their computerized clinical records, and of these consenters, 8,962 people had had a morbidity consultation in the 2 years before the baseline survey. However, only 7,779 had completed the Short Form (SF) questionnaire, and it was this group that formed the study sample, and their survey data were linked to the morbidity data coded by FPs as the patients had presented their problems during consultation.

2.3. Baseline survey measures

In the baseline health questionnaire survey, the physical component summary (PCS) score of the SF-12 provided the primary outcome measure of physical health severity [23]. The SF-12 also provides the mental component summary (MCS) score, which was used as a measure of psychological health. Other survey data included were age, gender, and Index of Multiple Deprivation (IMD) based on the 2004 census as an area-level measure of deprivation [24]. An IMD score combines a number of indicators, including economic, social, and housing issues, into a single deprivation score for each small area in England.

2.4. Selection of cardiovascular diseases and musculoskeletal disorders

In clinical consultations, FPs had used the Read classification to code the morbidity as presented by patients. Read classifications have a main chapter heading, for example, Chapter G for cardiovascular disease and Chapter N for musculoskeletal disorders. Within each chapter, there are four sublevels of coding, and we used the third hierarchical level to define diagnostic categories for the study. For the cardiovascular disease and musculoskeletal disorder