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Changing circumstances drive changing attendance: A longitudinal cohort study of time varying predictors of frequent attendance in primary health care

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ABSTRACT

Objective: To investigate risk factors for frequent attendance in primary care over time, contrasting models based on baseline and time-varying characteristics.
Methods: Analysis of data from the Personality and Total Health (PATH) Through Life Project: a representative community cohort study from the Canberra region of Australia. A balanced sample of 1734 respondents, initially aged in their early 40s, were assessed on three occasions over 8 years. The survey assessed respondents' experience of chronic physical conditions, self-reported health, depression symptoms, personality, life events, socio-demographic characteristics and self-reported medication use. Survey data were linked to respondent's own administrative health service use data, and used to generate an objective measure of general practitioner (GP) consultations over a 12-month period. For each gender, respondents in the (approximate) highest decile of GP consultations at each time point were defined as frequent attenders (FAs).
Results: Analysis showed chronic health conditions, self- reported health, mental health and medication use measured at baseline was associated with FA status, with some gender differences evident. However taking into account of changing circumstances improved the model fit and the prediction over FA status over time.
Conclusions: The study showed that there is considerable variability in frequent attender status over the study period. While baseline characteristics can predict current and future frequent attender status, it is clear that frequent attender in primary care does reflect changing circumstances over time.

Introduction

Across many OECD (Organisation for Economic Co-operation and Development) countries there is concern about the sustainability of health care costs, particularly in context of ageing population. [1,2] In Australia, recent public and policy attention has focused on potential unnecessary or overuse of health services. [3,4] Under Australia's universal health insurance scheme, 82.2% of general practitioner (GP) consultations incur no direct or out-of-pocket costs for patients [5] and policy proposals have considered the introduction of a mandatory co-payment as a price signal to discourage unnecessary consultations. This debate has focused attention on patients identified as frequent attenders (FAs) but highlighted the limited Australian research on the topic.

International research has found that the top 3% of FA in primary care account for around 15% of the consultations. [6] Additionally FAs generate five times as many prescriptions and hospital contacts as other patients. [7] FAs 3-year expenditures have been found to be higher than non FAs even after adjustment for all other included confounders. [8] In Australia, data from the national universal health insurance scheme (Medicare) from 2012 to 13 shows the top 12.5% of GP attenders accounted for 41% of (non-hospital) Medicare expenditure. [9].

Of course, FA status may not reflect unnecessary or overuse of services. A greater number of GP consultations may simply reflect patient morbidity. For example, Foster et al. [10] found that high and very high frequency attenders consulted more frequently for all morbidities. However they also showed that some aspect of frequent consultation cannot be explained by patient morbidity but reflects

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other characteristics of certain individuals irrespective of their symptoms or diagnoses. Indeed Vedsted and Olesen [11] found that even after adjusting for health, living alone and unemployment were predictors of frequent attendance for men. Other characteristics shown to be related to frequent attendance are socioeconomic status, [12] employment status (particularly unemployed), [13] being an immigrant, [7,14] insecure attachment, [15] distress, [16] and number of medical issues. [10]. One factor consistently associated with frequent attendance is somatising and somatic illness. [17–19] Gili et al. [13] found that depressive and somatoform disorders are the most powerful factors that explain frequent attendance in primary care. Additionally FAs have less sense of coherence [20], and greater health anxiety and hypochondriacal beliefs [21,22]. Further, factors associated with frequent attendance may interact for example unmarried men were more likely to be FAs than married men; a difference not seen among women. [19] We recently examined the risk factors for frequent attendance in an Australian setting and found that frequent attendance was greater than expected by chance and related to baseline reports of diabetes, asthma, thyroid problems, arthritis, somatic symptoms (e.g. headaches), depression, rumination, mastery, number of life events, self-reported physical health, labour forces status, financial pressure, and medication use. [23].

Consideration of change over time and longitudinal data may be a key to better understanding frequent attendance. A major focus has been on prospective studies investigating patients who are persistently classified as FAs over time. In a 20 year study Carne, Guy and Jeffery [24] found that the majority of FAs reverted back to normal consulting patterns within 5 years. The strongest predictor of those people who were consistent FAs was multiple morbidity. Smits, Brouwer, ter Riet and van Weert [25] distinguished between FAs for only 1 year and those who were persistent FAs over 3 years. The 1-year FAs (10.6%) were responsible for 39% of the face-to-face consultations, while the persistent FAs (1.6%) were responsible for 8% of all consultations. Persistent FAs presented more social problems, more psychiatric problems and medically unexplained physical symptoms, but also a greater likelihood of chronic medical conditions (especially diabetes). Additionally they received more prescriptions for psychotropic medication. More recently Smits et al. [26] found that both characteristics over 3 years (anxiety and number of life events) as well as baseline panic disorder, anxiety, illness behaviour and lack of mastery were associated with persistent frequent attendance status.

This type of information can be used to target those at risk of frequent attendance. For example Smits, Brouwer, van Weert, Schene and ter Riet [27] developed a model comprising age, the number of problems on the GP's problem list, presence of any of three chronic somatic illnesses (diabetes mellitus, cardiovascular illness, and respiratory illness), presence of a psychological/social problem (including (feelings of) anxiety, (feelings of) depression, and/or addictive behaviour), and the use of pain medication to 1 and 3 year FAs. The model was shown to discriminate moderately when validated at a different time and a different geographical location. [16] We recently examined the risk factors for persistent frequent attendance in an Australian setting and found that consistent and occasional frequent attendance was most strongly differentiated by baseline reports of depression, self-reported physical health, and medication use. [23].

While the identification of (baseline) characteristics that predict current and persistent frequent attendance can inform targeting and early intervention, different forms of longitudinal analysis are relevant to other policy questions. Smits et al. [8] noted that future research should focus on the aetiology of (persistence) frequent attendance. Questions about whether frequent attendance reflects patient morbidity and need rather than unnecessary overuse may be informed by analysis of how change in frequent attender status over time is associated with change in other patient characteristics.

The current study extends the previous research on frequent attendance through a focus on primary care use among a mid-aged Australian cohort followed over eight years. In addition to rich survey data, providing information of the social circumstances, characteristics, health and personality of the participants, the survey data is linked to administrative health service use data which provides an unbiased account of attendance at primary care. Following from our earlier research using baseline characteristics to predict persistence in frequent attendance we initially consider the predictive ability of baseline characteristics of FA status over eight years. Particularly we will test whether FA status is better predicted by a focus on time varying characteristics of individuals than when modelling is restricted to baseline characteristics. To aid interpretation, we contrast the Population Attributable Fraction from these two types of models: contrasting the percentage of FA status that is explained by baseline characteristics of individuals with that explained by changing circumstances over time such as morbidity, perceived health, mental health, socio-demographics and medication use.

Method

Design

This study draws on data from the Personality and Total Health (PATH) Through Life Project, a longitudinal community study of health and wellbeing. The data, methods and individual scales and measures are described in detail elsewhere [28] but briefly: the PATH project follows three narrow age-range cohorts, randomly sampled from the electoral rolls for Canberra and Queanbeyan and reassessed every 4 years. This analysis considers data from three timepoints for the mid-aged cohort who were born between 1956 and 1960. There were 2530 participants who completed the baseline interview in 2000 (a response rate of 65%). The attrition rate is low, with 93% of respondents reassessed at wave 2 (in 2004), and 86% of initial participants reassessed at wave 3 (in 2008).

Respondents were assessed by a trained interviewer, usually in their own home or at the Australian National University. At each wave participants completed self-report measures on a laptop computer and the interviewer administered a battery of physical and cognitive tests. Participants were asked to consent to release administrative (Medicare) data on their health service use for a 2-year period surrounding their interview date. Linkage was conducted by the Health Insurance Commission based on Medicare Number supplied by respondents. The consent rates to data linkage across the three wave ranged from 92% to 96%.

The Human Research Ethics Committee of The Australian National University approved all aspects of the PATH study, including data linkage, and at each wave respondents provided written informed consent.

Measures

The individually-linked Medicare data was used to calculate the number of GP consultations for each respondent in the 12 months surrounding the date of each individual's interview (six months prior and 6 months post). A comprehensive list of relevant GP Medicare item numbers (service encounters for which a fee is payable) was generated for each wave. This represents all services delivered by a GP and funded through the national universal health insurance scheme including consultations, chronic disease management, assessments, immunisation, screening, psychological treatment, and after hour consultation etc. It does not include services delivered by other medical professionals, nurses, or specialists or services delivered in a hospital setting. For each wave, a cut-point was applied to identify the (approximately) 10% of respondents with the greatest number of GP consultations