



Out-of-pocket costs, primary care frequent attendance and sample selection: Estimates from a longitudinal cohort design

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ABSTRACT

This paper examines the effect of out-of-pocket costs on subsequent frequent attendance in primary care using data from the Personality and Total Health (PATH) Through Life Project, a representative community cohort study from Canberra, Australia. The analysis sample comprised 1197 respondents with two or more GP consultations, and uses survey data linked to administrative health service use (Medicare) data which provides data on the number of consultations and out-of-pocket costs. Respondents identified in the highest decile of GP use in a year were defined as Frequent Attenders (FAs). Logistic regression models that did not account for potential selection effects showed that out-of-pocket costs incurred during respondents' prior two consultations were significantly associated with subsequent FA status. Respondents who incurred higher costs (\$15–\$35; or >\$35) were less likely to become FAs than those who incurred no or low (<AUS\$15 per consultation) costs, with no difference evident between the no and low-cost groups. However, a counterfactual model that adjusted for factors associated with the selection into payment levels did not find an influence of payment, with only a non-significant gradient in the expected direction. Hence these findings raise doubts that price drives FA behaviour, suggesting that co-payments are unlikely to affect the number of GP consultations amongst frequent attenders.

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1. Introduction

In 2014 the Australian Health Minister noted that a small group of patients accounted for a large proportion of overall government funded health services and proposed a need to reconsider the way these patients were managed [1]. The most prolific users of primary health care services (frequent attenders (FAs)), commonly defined as the top 10% of attenders in a year, have been found to account for 33% of GP consultations [2] and generate five times as many prescriptions and hospital contacts as other patients [3]. FA's 3-year expenditures have been found to be higher than non-FAs, even after adjustment for patient and health care provider characteristics [4]. Data from Australia's universal health insurance scheme (Medicare) from 2012 to 13 show the top 12.5% of general practitioner (GP) attenders accounted for 41% of (non-hospital) Medicare

expenditure [5]. Despite FA being signalled as a potential point for intervention it is not clear if frequent attendance necessarily reflects overuse of services or whether out-of-pocket costs are a determinant of their behaviour.

Under the Australian Medicare system, a scheduled fee is set for each type of health service or consultation. GPs can opt to accept this scheduled fee from Medicare and not charge their patients directly. Alternatively, GPs can charge patients an amount greater than the scheduled fee. In these cases, the patient can receive a rebate of up to 100% of the scheduled fee but the difference represents an out-of-pocket expense borne by the patient. Recent Medicare data indicated that over 80% of in-scope GP consultations incur no patient out-of-pocket costs [6]. Consultations that incur no out-of-pocket costs are positively associated with chronic disease, and having a concession card and negatively with larger practice size, having an appointment for the visit, higher household income, having private health insurance, and inner and outer regional residence (compared to major cities) [7,8]. While Medicare covers the majority of consultations it does not cover all primary care consultations in Australia, excluding Department of Veterans' Affairs beneficiaries, patients receiving treatment under compen-

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sation agreements, and some telephone helpline or extended hours (nurse-led) walk in clinics (for more information see [9]).

Since universal health insurance was first introduced to Australia in 1975 there has been considerable variability in the proportion of GP consultations with no additional cost, suggesting that GP's decision on price charged may be sensitive to policy parameters and incentives. Concerns about unsustainable growth in health expenditure have prompted calls to introduce a price signal to reduce unnecessary and over use of health services [10,11]. There has been much discussion about a mandatory co-payment [12,13] and a freeze on the level of scheduled fees [14] which, over time, would increase pressure on GPs to charge above the set rebate [15].

It is unclear if, and in what context, a mandatory co-payment or cost sharing would change attendance behaviour. In the USA, Medicaid recipients (who are enrolled in a private health plan which covers all or most of the recipient's healthcare needs) were more likely to be FAs than others [16]. Out-of-pocket expenses at the point of use have been shown to influence overall attendance at health care institutions [17–19] particularly when free [20]. There is some evidence of effects of mandatory co-payments in vulnerable populations including evidence of adverse health consequences for patients with heart failure and diabetes mellitus [21], and an impact on adherence to cardiovascular disease treatment [22] and attendance at obstetric emergency rooms [23]. Increases in co-payments in the US have been found to be related to decreased utilization of inpatient care, physician visits, brand-name medications, and emergency department visits [24]. The most comprehensive examination of co-payments, the RAND health insurance experiment, which has collected over 40 years of data, found that higher out-of-pocket expenses led to fewer medical visits and hospital admissions, [25,26] and detrimental health effects for the sickest and poorest patients. In Australia, 14% of adults reported not attending the GP or getting appropriate care due to the cost [27,28] including 24% of individuals with chronic health problems [28], consistent with international evidence [28,29]. While the ramifications of introducing co-payments in Australia are still being debated, the relationship between out-of-pocket expenses and frequent GP attendance remains unclear [30]. Furthermore, many previous studies using observational data to examine attendance have not controlled for potential selection bias. This creates a problem as it is difficult to demonstrate causality with observational data as individuals are not randomly assigned to treatment groups. Patients who receive reduced or no cost consultations are potentially different from those who are charged more, and this introduces a possible source of bias in estimates of a causal effect of out-of-pocket costs on subsequent attendance.

We have previously used administrative Medicare data linked to longitudinal survey data to identify the characteristics of Australian primary-care FAs [2] and found that health related risk factors assessed in the survey explained over 50% of FA status and this increased a further 10%–17% when the time varying nature of the risk factors was considered [31]. This research added to the literature linking FA status to a range of patient characteristics including socioeconomic status [32], employment status (particularly unemployed) [33], being an immigrant [3,34], insecure attachment [35], distress [36], number of medical issues [37], and somatising and somatic illness [38–40], but did not examine the role of out-of-pocket expenses on frequent attendance behaviour.

The aim of this paper is to contribute to the ongoing policy debate in Australia and internationally on health care use and expenditure concerns, and examine whether the costs patients incur for GP consultations influence their likelihood of becoming a FA, using methods that adjust for potential selection effects. We assess whether the average costs incurred by a patient in two consultations influences subsequent attendance in the following

12-month period after controlling for a range of patient health and social circumstances (e.g., chronic physical conditions, medication use, mental health, and socioeconomic characteristics), and their previous year's health service use and costs. The linkage of administrative data of attendance at primary health care with rich survey data on health (which provide an independent marker of need) allows for a unique investigation of potential drivers of attendance and the relative effect of out-of-pocket costs in relation to need based drivers which have been identified as important in previous research [e.g. 2,4,39,41].

2. Method

2.1. 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 [42]. Briefly, the PATH project follows three narrow age-range cohorts, randomly sampled from the electoral rolls for Canberra and Queanbeyan and reassessed on four occasions. This analysis considers data from wave four interviews conducted in 2012/13 with the mid-aged cohort who were then aged between 52 and 58 years. Overall, 2257 respondents remained in-scope for wave four and were invited to participate. Respondents who remained resident in the local region ($n = 1615$) were invited to participate in a face-to-face interview, which included physical, cognitive and clinical assessment, and asked to complete a comprehensive survey questionnaire online. Of these, 1570 (97%) participated. The remaining 642 in-scope respondents who had moved from the Canberra region were invited to complete an online survey alone, with 236 (36.8%) participating. Participants were asked to consent to release their administrative health service use (Medicare) data from a four-year period, and 1591 (88%) gave consent. The analysis is further restricted to those respondents identified with at least two GP consultations during a 12-month study period (thereby excluding 399 respondents). Thus, the analysis sample comprises 1192 respondents.

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

2.2. Measures

Data on out-of-pocket expenses for each individuals' last two consultations in the 12 months from July 2011 were used to define the exposure groups (average out-of-pocket costs). Analyses categorized the average cost of these two GP consultations as: none (both no-cost); low (less than \$15); medium (\$15–\$30); and high (greater than \$30). These levels were chosen as \$15 represents a previously proposed co-payment level [43] and \$30 represents the median average payment in our cohort (further, the average ACT patient contribution for GP services in 2012/13 was \$34.40). Attendance during the 12 month period immediately following the second of these visits was used to calculate FA status. Hence, there was a 12-month observation period for all participants but these could have different starting points. The analysis considers a comprehensive list of relevant GP Medicare item numbers (see [2]) representing all face-to-face Medicare services delivered by a GP. A cut-point was applied to identify the (approximately) 10% of respondents (stratified by gender) with the greatest number of GP consultations consistent with the FA literature [4,31]. Classification is stratified by gender as attendance behaviour has previously been found to differ for men and women [31] and the cut point was

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