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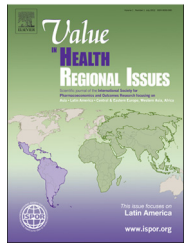

Doctors Adjacent to Private Pharmacies: The New Ambulatory Care Provider for Mexican Health Care Seekers

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ABSTRACT

Background: In 2010 Mexican health authorities enacted an antibiotic sale, prescription, and dispensation bill that increased the presence of a new kind of ambulatory care provider, the doctors adjacent to private pharmacies (DAPPs). **Objectives:** To analyze how DAPPs' presence in the Mexican ambulatory care market has modified health care seekers' behavior following a two-stage health care provider selection decision process. **Methods:** The first stage focuses on individuals' propensity to captivity to the health care system structure before 2010. The second stage analyzes individuals' medical provider selection in a health system including DAPPs. This two-stage process analysis allowed us not only to show the determinants of each part in the decision process but also to understand the overall picture of DAPPs' impact in both the Mexican health care system and health care seekers, taking into account conditions such as the origins, evolution, and context of this new provider. We used data from individuals (N = 97,549) participating in the Mexican National Survey of Health and Nutrition in 2012. **Results:** We found that DAPPs have become not only a widely accepted but also a preferred option among the Mexican ambulatory care providers that follow no specific income-level population user group (in spite of its original low-income population target). Our results showed DAPPs as an urban and rapidly expanded phenomenon, presumably keeping the growing pace of new communities and adapting to demographic changes. **Conclusions:** Individuals opt for DAPPs when they look for health care: in a nearby provider, for either the most recent or common ailments, and in an urban setting; regardless of most socioeconomic background. The relevance of location and accessibility variables in our study provides evidence of the role taken by this provider in the Mexican health care system.

Keywords: antibiotic regulation, captivity, dispensing policy, drug prescription, health care–seeking behavior, Mexico, pharmaceutical policy, pharmacies.

Introduction

For almost 70 years the Mexican ambulatory health care system had only three providers: social security, public services, and private care. Nevertheless, this composition changed when the presence of a new provider skyrocketed in 2010. Believed to be a reaction to the 2010 Mexican antibiotics regulation policy [1,2], doctor adjacent to private pharmacy (DAPP) consultation offices yielded overnight a four-provider ambulatory care system.

Initially targeting a low-income population [3] and being part of the attention concept of a single pharmacy chain in 1997, DAPPs' presence grew to become part of practically every pharmacy business model. Designed to co-exist with the previous providers, because only ambulatory services are offered and a full substitution scheme is not available, DAPPs settled in the ambulatory health care market through three main distinguishing features: very short waiting times, minimum cost per consultation or no cost at all, and side-by-side location to private pharmacies. It passed from an average annual growth rate and ambulatory consultation market share of 13.8% (2006–2010) and 2% (2006), respectively, to 43.8% (2011–2013) and 16% (2012) in post-2010 figures (see Fig. 1). The new 2010 antibiotics law in combination with both the unique traits offered by DAPPs and the incomplete regulation package implemented in Mexico (no national pharmaceutical policy [4], consumer and physician education programs, or appropriate regulation enforcement measures [5]) may have resulted in the observed unhindered growth of the provider.

Given the new conditions of medication availability and provider accessibility because of the joint presence of a pharmacy and a doctor (more than 11,000 consulting offices nationwide, ~20,000 physicians employed, and 35 million consultations per year in 2012), we believe that DAPPs' sudden presence may have modified the decision-making process of selecting an ambulatory medical provider in Mexico. To observe this, we propose conceiving the outcome decision as a two-stage process requiring two

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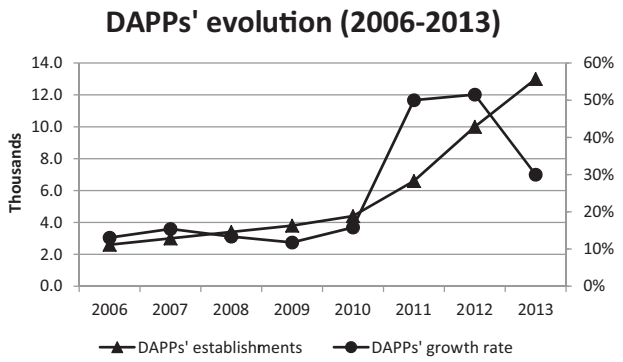

Fig. 1 – Evolution of DAPPs. *Source:* **COFEPRIS [19]. DAPPs, doctors adjacent to private pharmacies.**

independent but sequentially linked analyses. First, we focus on individuals' willingness to search for a new provider other than those in the pre-2010 tripartite system composition, after a captivity analysis [6]. Then we focus on the provider selection itself, but only for those individuals for which a new option such as DAPPs represented a feasible and available option.

This two-stage analysis offers some advantages. Methodologically, it helps to avoid the sometimes troublesome independence of irrelevant alternatives property of the multinomial logit [7] used in the discrete choice phase. Interpretatively, it allows following step-by-step health care seekers' intentions. Sequentially understanding why individuals looked for a new option and then why they finally picked it revealed the apparent "convenience store" role of DAPPs in the Mexican ambulatory care system.

To our knowledge, none of the existing analyses concerning the effects of the next-door pharmacy boom have focused on health care seekers' behavioral change, but have focused on the possible collusion effects, market share redistributions, and policy origins. Lee et al. [8] and Chou et al. [9] found that the 2002 Taiwanese drug dispensation and prescription separation reform fostered an increase in the market share of gateway pharmacies and that in the postreform period nearly 80% of all prescriptions were filled by privately owned next-door pharmacies. In addition, they bring up the possible conflict of interest (or collusion [9]) by the prescriber's ownership of the prescription-filling pharmacy. Similarly, James et al. [10] described a series of analogous situations for the Philippines.

As for Mexico, and up to this study, only Pérez-Cuevas et al. [1] have made a provider selection analysis considering DAPPs as an independent provider. They found evidence that having acute health problems, being young, and living in an urban environment encouraged attendance to DAPPs. Correspondingly, on the basis of people's perception, they found that the predominant reasons for using DAPPs were their inexpensive services, convenient locations, and short waiting times. Nevertheless, this gave no evidence of the effects of this provider's traits and abrupt extended presence in the provider selection process. Valencia-Mendoza and Bertozzi [11] have analyzed Mexicans' ambulatory care provider selection process as well; nevertheless, because of data availability, DAPPs could not yet be differentiated as an individual provider.

The present study found that DAPPs do not have a specific income-level population user group. Individuals prefer this provider for either one of the two most common reasons of consultation (respiratory infections and chronic diseases), electing it, in general terms, over any other provider during the first 30 days of the ailment. In addition, this provider is an urban phenomenon presumably keeping up with the growing pace of urban sprawls. Therefore, in the context of the generalized aversion to distance also found and the provider's distinguishing features, DAPPs seem to be the first option for ambulatory care seekers and the "convenience" medical provider of the Mexican health care system.

The article develops as follows. The first section discusses the reasoning behind the proposed two-stage approach and gives an explanation of the models. The next section provides the results for both the captivity and provider selection models. The following section discusses both stages in behavioral terms, and the last section provides a conclusion of the study.

Methods

DAPPs' focalization on ambulatory services makes them a coexisting provider. They compete for the ambulatory services of either social security or public/private services, but, given their nature, cannot become a complete health care provider substitute. When considering DAPPs, any given ambulatory health care seeker is not expected to relinquish his or her regular provider from the pre-2010 system, maintaining an attachment by either custom or necessity of a major service instead. This particular condition is the foundation of our proposed two-stage analysis. By adding a preceding stage to the typical multinomial discrete choice analysis, we first find for whom and why, in spite of the possible aforementioned liaison with a pre-2010 provider, DAPPs are a feasible option. Then, focusing only on this subgroup of health care seekers, we complete the analysis by finding the determinants behind the provider selection itself.

Accordingly, the first stage corresponds to a captivity analysis as defined by Propper [6], in which a captivity status (being captive or not) involves a certain measure of satisfaction with the health system [12] and the system's responsiveness according to the World Health Organization [13] as a means of attracting consumers [14]. Although Costa-Font and Jofre-Bonet [12] interpreted the noncaptive status as an expression of dis-satisfaction and analyzed the acquisition of private health insurance, we channel and interpret a noncaptive status as a dis-satisfaction with the pre-2010 system and its corresponding search and usage of new ambulatory care options (DAPPs included).

To define a captivity status, let I_i be "propensity to captivity" for individual i,:

$$I_i = \lambda_i' + \mu_i \quad i \in \{1, 2, \ldots, N\},$$

where λ_i' represents the provider selection constraints to individual i, N is the total sample population, and μ_i represents the error terms assumed independent and identically distributed with mean 0 and variance σ_μ^2.

Because I_i was not directly observed, an indicator variable ι_i was made with individuals' answers to the question "When you have a health problem, where do you *usually* receive attention?" in the ambulatory care section of the Mexican National Survey of Health and Nutrition of 2012 [15].

$$\iota_i = \begin{cases} 1, & \text{iff } I_i > 0 \\ 0, & \text{otherwise} \end{cases}$$

Depending on their answers, each individual i was deterministically assigned a captivity status. Health care seekers who exclusively mentioned providers from the pre-2010 composition were assigned a captive status ($\iota = 1$), and all the others were assigned a noncaptive status ($\iota = 0$). Consequently, each individual was assigned a set of feasible alternatives of health care provider options depending on the captivity status. Following