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General Practitioners' intention to prescribe and prescribing patterns in selected European settings: The OTCSOCIOMED project

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ABSTRACT

The aim of this paper is to explore general practitioners' (GPs) prescribing intentions and patterns across different European regions using the Theory of Planned Behavior (TPB).

A cross-sectional study was undertaken in selected geographically defined Primary Health Care areas in Cyprus, Czech Republic (CZ), France, Greece, Malta, Sweden and Turkey. Face-to-face interviews were conducted using a TPB-based questionnaire. The number of GP participants ranged from 39 to 145 per country. Possible associations between TPB direct measures (attitudes, subjective norms (SN) and perceived behavioral control (PBC)) and intention to prescribe were assessed by country.

On average, GPs thought positively of, and claimed to be in control of, prescribing. Correlations between TPB explanatory measures and prescribing intention were weak, with TPB direct measures explaining about 25% of the variance in intention to prescribe in Malta

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and CZ but only between 3% and 5% in Greece, Sweden and Turkey. SN appeared influential in GPs from Malta; attitude and PBC were statistically significant in GPs from CZ. GPs' prescribing intentions and patterns differed across participating countries, indicating that country-specific interventions are likely to be appropriate. Irrational prescribing behaviors were more apparent in the countries where an integrated primary care system has still not been fully developed and policies promoting the rational use of medicines are lacking. Demand-side measures aimed at modifying GPs prescribing behavior are deemed necessary.

1. Introduction

Prescription of medicines is a fundamental component of patient care. Physicians play a crucial role in determining the volume of medicines consumed through their prescribing decisions, thus affecting an important part of the pharmaceutical expenditure equation. Furthermore, physicians are responsible for the rational prescription of medicines, and thus contribute to their rational consumption [1]. The World Health Organization (WHO) defines the rational use of medicines as the situation where "*patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community*" and estimates that more than 50% of medicines worldwide are prescribed, dispensed or consumed irrationally [2]. Irrational prescribing appears to be common, especially at the primary care level and it is related to polypharmacy, overuse of antibiotics and injections, failure to prescribe in accordance with clinical guidelines and inappropriate self-medication. Irrational prescribing could therefore have a negative impact on both clinical outcomes and pharmaceutical expenditure [3–5].

Efforts are being made to decrease pharmaceutical expenditure worldwide and to promote rational prescribing and rational use of medicines. The achievement of these goals, and the need for a cost-effective health care system and containment of expenditure, is urgently required in Southern European countries which have been greatly affected by financial crises in recent years.

Toward this target, as a reaction to the global financial crisis, almost all European countries implemented new pharmaceutical policies from 2010 on, as a reaction to the global financial crisis [6].

In certain Southern European countries (such as Cyprus, Greece, Malta, Turkey) in which the primary care system is not well organized [7], and until recently there were no well-developed or mandatory national mechanisms to monitor medicine consumption and promote the rational use of medicines [8], the current economic crisis opens up the opportunity to implement new policies and interventions toward these goals. In Greece and Turkey, problems relating to irrational prescribing and the provision or consumption of prescribed medicines as over the counter (OTCs) have been reported [9,10]. A qualitative study conducted in Greece identified four prescribing patterns that do not comply with the rational prescribing criteria and were considered as "phenomena" of irrational prescribing. These phenomena were: "*prescribing to a representative of the patient, prescribing for medicines already bought from the pharmacy, repeat prescriptions for chronic diseases without examining the patient, and prescribing in the absence of a definitive diagnosis*". [11]

Many factors can influence the prescribing decision of physicians including the physician's [12,13] and patient's [14,15] demographic characteristics, the perceived expectations of the patient [16,17] as well as the relationship among physicians and their colleagues [18], pharmacists [19] and pharmaceutical sales representatives [20]. Furthermore, the pharmaceutical policy and the cost for the patient and the health system [21,22] are also decisive factors in the decision to prescribe.

Knowledge of physicians' prescribing patterns and process of decision-making within different health systems and socio-cultural environments can contribute to the selection of the most suitable, effective and efficient measures toward the improvement of prescribing behavior. However, data regarding the extent to which such factors and perceptions toward prescribing contribute to the actual prescribing decision are drawn mainly from Northern European settings. In addition, the majority of published studies investigate the impact of specific factors and not the impact of the total potential factors on prescribing.

Under these circumstances and given that prescribing is one of the most frequent therapeutic decisions by general practitioners (GPs), [23] a comparative study was conducted in seven primary care settings in Europe, and formed part of a European FP7 project (No: 223654) entitled "*Assessing the Over-the-counter Medications in primary care and translating the Theory of Planned Behavior (TPB) into interventions*". The main purpose of this project was to provide an understanding of the factors that have an impact on the intention of GPs to prescribe, pharmacists to recommend and patients to consume medicines.

The TPB is a valuable framework for determining intention and has been applied in many studies that explore health professionals' behavior [24–26]. According to the TPB, intention is an appropriate proxy of individual behavior and can be used in the development of interventions and in the identification of the main factors to be utilized in professional behavior change strategies [27]. The intention of a person to engage in a specific behavior is influenced by: attitude toward the behavior, perceived social pressure to perform or not to perform the behavior (subjective norms, SN), and factors which hinder or promote the behavior (perceived behavioral control, PBC) [24]. Details are provided in Fig. 1.