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### Lay views about medicines: The influence of the illness label for the use of generic versus brand

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## Lay views about medicines: The influence of the illness label for the use of generic *versus* brand

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The aim of this cross-sectional study was to investigate how different types of prescriptions using different illness labels may influence lay views about the use of generic or brand medicines. The participants were 882 Portuguese (both sexes) recruited from the general population, who completed a self-administered questionnaire. A vignette methodology was used in which different prescriptions (generic *versus* brand) were given for the same label (flu, hypertension, asthma and angina pectoris). The dependent variables were for each illness label: (a) the level of agreement with the prescription, (b) beliefs about the efficacy of a medicine and (c) beliefs about the relief of symptoms. There were main effects of the label and the type of prescription upon beliefs about the use of medicines. There were interactions between illness label and type of medicines. Labels which were perceived as more serious were associated with a lower belief in generic medicines. These results raise important questions concerning the need to consider illness perceptions of lay people (including perceived severity) and its relationship with perceptions of treatment for different conditions. Furthermore, these results may have implications for health-related behaviour in general, and in particular for communication between lay people and health professionals, prescribing behaviour, health costs and adherence to treatment.

**Keywords:** lay beliefs; generic medicines; illness labels

### Introduction

The practice of generic substitution has been supported by health authorities in many countries because it provides a cheaper alternative to brand medicines (Ganther & Kreling, 2000). The Food Drug and Administration (FDA) consider the generic drugs as bioequivalent to brand names in safety, strength and quality (Haas, Phillips, Gerstenberger, & Seger, 2005). The decisions about the choice of generic or brand medicines may be influenced by patients' beliefs about their treatment, and their side effects, as well as their illness perceptions (Horne, 1999). The literature also shows

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that patients develop beliefs about the necessity of a specific medication for maintaining their health status (Barber, Parsons, Clifford, Darracott, & Horne, 2004). Beliefs about illness and medicines are interconnected, and may influence compliance and outcomes (Ross, Walker, & Macleod, 2004). However, little is known about how patients make decisions concerning medicines or about their preferences for one drug or another.

When patients are diagnosed with an illness they develop an organised pattern of beliefs about their condition (Petrie & Weinman, 2006). These studies argued that patients with the same illness have widely different perceptions of their condition and these can lead to different illness trajectories. Petrie, Jago, and Devcich (2007) also propose that illness perceptions play a central role in influencing how to manage the illness and in guiding adherence decisions. For many patients, the choice of a medicine still depends exclusively upon medical prescriptions. However, it is widely acknowledged that patients play a more active role in health care and in their decisions about treatment (Garfield, Smith, Francis, & Chalmers, 2007) which may have implications for adherence to medication.

Over the years, it has become clear that individual health is closely linked to community health which, in turn, is affected by the collective beliefs, attitudes, and behaviours of everyone who lives in the community. The studies reported in the literature have focused mainly on patients, and there has been much less focus on how healthy people think about medicines. The study of lay views about medicines in people considered healthy is of potential importance in research because these people may eventually become patients and their views may influence their use of medication. According to Hughner and Kleine (2004), consumers make the key decisions regarding whether and when to seek care, whom to consult and whether to comply. The same authors also argue that consumers now have a much wider array of health care choices and information available. There is evidence that levels of knowledge about medicines in general may also influence consumer attitudes and beliefs about medicines for particular illnesses (Horne & Weinman, 1999), suggesting that perceptions concerning efficacy and safety of generic prescriptions may depend on the medical condition being treated. Illness and treatment beliefs may also play a crucial role in people's decisions about the choice between generic and brand medicines. Some authors have argued that the nature of the illness threat is influenced by the illness label and the interpretation of symptoms (Horne, 1999; Leventhal et al., 1997). Leventhal et al., (1997) also argued that lay illness models are idiosyncratic and may vary as different labels may include a wide range of symptoms and different symptoms may be included under the same label. According to Gaither, Kirking, Ascione, and Welage (2001) the consumer's perception of an illness was the main determinant of generic drug use, rather than beliefs regarding the equivalence of brand and generic medicines. Previous studies have investigated whether consumers were more likely to purchase a generic over-the-counter medication or a brand prescription for minor or more serious health problems (Govender, Pillay, Conrad, Parbhoo, & Selagan, 2005). The results indicated that people were less likely to take generic drugs for chronic and serious conditions, although they knew what generics were, had positive experiences with them and thought they were equal in quality to brand name products. However, their decisions for not to take generics appeared to be driven by a fear of health loss, which increased with the seriousness of a disorder, rather than the belief that generics were in general, equivalent to brand names. These findings indicate that the consumer's perception of their illness also influences the preference for

a medicine. Although we can expect that preferences for medicines may differ between the general population and those who experience a condition, we can assume that the perceptions of illness severity, beliefs and knowledge about medicines, will all have an important role in decisions about the use of generic or brand medicines.

In order to examine the beliefs of healthy individuals in a community sample, it becomes necessary to make use of hypothetical illness scenarios, to investigate the extent to which they influence medication preferences in conditions requiring the use of medication. Thus the aim of this study is to investigate how different types of prescriptions (brand and generic medicines) influence lay views about the use of generic or brand medicines using several illness labels. We hypothesised that participants will be more likely to choose brand medicines for illness labels which are perceived as more serious.

## Methods

### *Design and procedure*

A  $2 \times 4$  within subjects design was performed using a vignette methodology, in which order effects were controlled for by changing the order of presentation of illness labels (A – Flu, B – Hypertension, C – Asthma and D – Angina Pectoris) as follows: ABCD, BCDA, CDAB, DABC for each scenario (brand and generic medicines). The participants were approached by a research assistant on public transport and in several work environments in the Lisbon Metropolitan area. All the participants completed both scenarios. The inclusion criteria were that general members of the community over 18 years old and able to read and write Portuguese. Participation was voluntary, and each participant completed an anonymous self-administered questionnaire on the spot. Due to the unexpected amount of advertising on TV, outdoors and in health care settings at the time of the study, the terms ‘brand’ and ‘generic’ were not defined for the participants. According to the National Data Protection Act (no 67/98 – Diário da República, I Série A, no 247, 26/10/1998), an anonymous data collection does not need to be notified and therefore does not require any special permission.

### *Measures*

For each of the four illness labels, the three dependent variables (single items) were (a) the level of agreement with the prescription (b) beliefs about the efficacy of a medicine and (c) beliefs about the relief of symptoms. Responses to each statement were scored on a 5-point *Likert* scale (1 = strongly disagree to 5 = strongly agree). These measures were adapted from a previous study (Figueiras, Marcelino, & Cortes, 2008). Two sets of hypothetical scenarios were used. In the first one, participants were given the following instructions: ‘Imagine that you were diagnosed with (*illness*)...and that you were prescribed a generic medicine. Please rate the extent to which do you agree with the following statements’. In the second set of scenarios, the only change was in the prescription (brand). The illness labels used for both scenarios were flu, hypertension, asthma and angina pectoris.

*Perceived level of seriousness*: one statement for each illness label (flu, hypertension, asthma and angina pectoris) rating perceived seriousness on a 5-point scale (1 = strongly disagree to 5 = strongly agree).

*Socio-demographic information*: age, gender and level of education.

## Analysis

The statistical analysis was performed using the Statistical Package for Social Sciences (SPSS version 16.0). A  $2 \times 4$  repeated measures (within-subjects) multivariate analysis of variance (MANOVA) was performed on the three dependent variables (views about medicines). The two independent variables were type of prescription (brand and generic) and illness labels (flu, hypertension, asthma and angina pectoris).

## Results

### Sample characteristics

The participants were 1330 Portuguese adults. Three hundred and eighty questionnaires were incomplete and 68 people declined to participate giving a response rate of 66%. The final sample consisted of 882 general members of the community, 360 males (41%) and 522 females, mean age of 31 years old ( $SD = 11.69$ ; range = 18–76). Twelve per cent of the sample had completed up to 6 years of formal education, 14% had completed 9 years of education, 42% of the participants had completed 12 years of education and 32% had academic degrees.

### Perceived level of seriousness

A repeated measures ANOVA was performed on the level of perceived seriousness for each illness label. The participants rated flu as significantly less serious than the other illnesses, and rated angina pectoris as most serious. There were significant differences between the four labels on perceived level of seriousness (means: Flu = 2.78 (0.93), Hypertension = 3.60 (0.96), Asthma = 3.53 (0.97), Angina Pectoris = 3.68 (0.93);  $F(3) = 482.9$ ;  $p = 0.000$ ).

### Multivariate analysis

For the level of agreement with the prescription, the results revealed a significant main effect of type of medicine (brand *versus* generic) ( $F(1,820) = 42.3$ ,  $p = 0.001$ ;  $\eta_p^2 = 1.0$ ) and a significant main effect of illness label ( $F(3,820) = 11.8$ ,  $p = 0.001$ ;  $\eta_p^2 = 1.0$ ). There was a significant interaction between type of medicine and illness label ( $F(3,820) = 56.2$ ,  $p < 0.001$ ;  $\eta_p^2 = 1.0$ ). The univariate *post-hoc* simple-effects analysis (Table 1) indicated that there was a stronger agreement with the use of generics for flu rather than for angina, and that the level of agreement about the use of a generic medicine significantly decreases for the angina scenario.

For beliefs about the efficacy of the medicine, the results indicated a significant main effect of type of prescription (brand *versus* generic) ( $F(1,827) = 3.9$ ,  $p = 0.05$ ;  $\eta_p^2 = 0.5$ ), and a significant main effect of illness label ( $F(3,827) = 14.3$ ,  $p = 0.001$ ;  $\eta_p^2 = 1.0$ ). There was a significant interaction between type of prescription and illness label ( $F(3,827) = 31.7$ ,  $p < 0.001$ ;  $\eta_p^2 = 1.0$ ). The univariate *post-hoc* analysis showed that the belief in the efficacy of a generic medicine significantly decreased as the illness label was perceived as more serious (Table 1).

For beliefs about relief of symptoms, the results indicated a significant main effect of type of prescription, ( $F(1,851) = 33.2$ ;  $p = 0.001$ ;  $\eta_p^2 = 1.0$ ), and a significant

Table 1. Means and SD of the illness label for each dependent variable.

		Range	Flu	Hypertension	Asthma	Angina
1. To what extent do you agree with this prescription?	Generic	1-5	3.85 (0.78)	3.62 (0.89)	3.61 (0.89)	3.60 (0.87)
	Brand	1-5	3.36 (0.91)	3.47 (0.89)	3.46 (0.89)	3.46 (0.88)
2. I believe in the efficacy of this medicine for this illness.	Generic	1-5	3.82 (0.71)	3.64 (0.81)	3.60 (0.82)	3.62 (0.79)
	Brand	1-5	3.70 (0.74)	3.70 (0.78)	3.75 (0.75)	3.74 (0.74)
3. I believe that the relief of the symptoms will be faster if I take a brand/generic medicine (reversed item).	Generic	1-5	3.61 (0.91)	3.55 (0.92)	3.54 (0.94)	3.53 (0.95)
	Brand	1-5	3.43 (0.81)	3.45 (0.82)	3.44 (0.81)	3.18 (0.90)

main effect of illness label ( $F(3,851) = 35.1$ ;  $p = 0.001$ ;  $\eta_p^2 = 1.0$ ). There was a significant interaction between type of prescription and illness label ( $F(3,851) = 22.3$ ;  $p < 0.001$ ;  $\eta_p^2 = 1.0$ ). The univariate *post-hoc* analysis showed that the belief in the relief of symptoms with generic medicines significantly decreased as the illness label was perceived as more serious (Table 1).

## Discussion

This study investigated whether presenting two types of prescriptions for different illness labels has different effects upon lay views about the use of generic or brand medicines in a community sample.

The results of the univariate analysis indicated that overall the participants showed a moderate level of agreement with the prescription of a generic medicine, together with a moderate belief about its efficacy and for the relief of symptoms. However, these beliefs decreased significantly as the illness label was perceived as more serious which confirms our hypothesis. For instance, there was a stronger belief in generic medicines for symptom relief for flu, whereas these beliefs were weaker for symptom relief for angina. The same occurred in a previous study with non-patients, in which the same pattern of results was found for different illness labels. The more serious the illness label was perceived, the less likely participants were to agree with the use of a generic medicine (Figueiras, Marcelino, Cortes, Horne, & Weinman, 2007; Figueiras et al., 2008). This result was also consistent with previous studies in which patients with chronic diseases often showed a negative attitude towards generic drugs (Barber et al., 2004; Sagardui-Villamor, Rodríguez-Labajo, & Casado-Buendía, 2005; Sansgiry, Bhosle, & Pope, 2006). The multivariate results also indicated that there were main effects of the illness label and the type of prescription upon views about the use of medicines, as well as significant interactions between illness label and type of prescription. Labels which were perceived as more serious were associated with a lower belief in generic medicines, in terms of efficacy and relief of symptoms. According to Gaither et al. (2001), the more serious or risky a consumer believed a medical condition was, the less likely he or she would be to choose or accept a generic product to treat it. Another possible explanation relates to the possibility that these participants consider inexpensive drugs to be inferior and



consequently not appropriate for more serious illnesses, as argued in previous studies (Ganther & Kreling 2000; Kjonniksen, Lindbaek, & Granas, 2006). According to Horne and Weinman (1999), beliefs about a particular illness may influence the choice of treatment, expectations for recovery, and eventually adherence to treatment. The same authors have argued that the beliefs about an illness are interconnected with beliefs about medicines. The results of this study suggest that views about generic medicines may influence beliefs about the treatment for specific illnesses, depending upon their perceived severity. The multivariate results also indicated that there were main effects of the illness label and the type of prescription upon views about the use of medicines, as well as significant interactions between illness label and type of prescription. Labels which were perceived as more serious were associated with a lower belief in generic medicines, in terms of efficacy and relief of symptoms. The same effect occurred for the level of agreement with the use of a generic medicine. Although these results are based on hypothetical data, they suggest that lay beliefs about the appropriateness of treatment for different conditions may have an impact in primary care. Particularly, it might be difficult for doctors who prescribe generics to persuade patients to accept these prescriptions if they perceive their problems as serious, independently of the cost savings. Ganther and Kreling (2000) found that risk perceptions about generic prescriptions were dependent upon the medical condition being treated. Although we used hypothetical scenarios to test preferences among a community sample, we might expect that preferences may change when individuals experience the condition. Our findings also raise questions related to the mismatch between lay models of illness and those of health professionals, which may be more important than medical factors in influencing treatment preferences.

This was an exploratory study using a large community sample. However, generalisation is limited. Because the use of generics is quite recent in Portugal, people's previous experiences with these medicines were not assessed. The illness labels were used as such and the symptoms were not described. The participants were considered 'healthy' and so no information was available as to whether they or their immediate family suffered from any of these illnesses. Also, we cannot rule out the possibility that they were receiving medication for any particular condition. The way in which the hypothetical scenarios were used may also have influenced the results. It is likely that the majority of the participants will have had personal experience of flu but far fewer will have had experience of the other conditions. There may be some effects related to social desirability factors since advertising about generics is increasing in the *media* and in health settings in Portugal and this may have had an influence on the level of agreement with the use of these medicines.

Overall, the results indicated that the illness label seems to influence people's views about the use of generic or brand medicines for specific illnesses in a community sample. These results raise important questions concerning the need to consider illness perceptions of lay people (including perceived severity) and their relationship with perceptions of treatment for different conditions. Furthermore, these results may have implications for health-related behaviour in general and in particular for communication between lay people and health professionals, prescribing behaviour, health costs and adherence to treatment. There is therefore a need to further explore the extent to which medicines are perceived by lay people as appropriate for the treatment of a specific condition.



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