

DETERMINANTS OF OLDER PEOPLE'S PREFERENCES FOR DISPENSING DOCTORS

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Abstract

Objectives: Dispensing doctors (DDs) are a central part of the medication supply in Austria. Nevertheless, they are controversial and research pays little attention to perspectives of user-groups, especially older people. Therefore, this article deals with determinants of older people's approval of dispensing doctors.

Methods: For this purpose, data from a telephone survey with people over 60 years in Lower Austria are used and evaluated by means of a logit model.

Results: The results show that accessibility of medicines is a major reason for the preference of DDs. Key factors are availability of a pharmacy in close proximity (OR: 0.44), independent use of a car (OR: 1.54) and individual mobility due to health reasons (OR: 1.14).

Discussion: DDs are important for older people in terms of a spatially close drug supply. A pharmacy at the place of residence only outweighs the preference for DDs if it is actually accessible for older people (taking low travel costs into account).

Conclusions: The aim must be to improve access to medicines in all communities where there is no pharmacy within a reasonable distance for people with health problems or those with restricted mobility.

Keywords: Dispensing doctors; Lower Austria; Medication supply; Older people; Perceived age

INTRODUCTION

Austria has 15.4 pharmacies per 100,000 inhabitants, which is a low density of pharmacies compared to the OECD average of 25. As a result, at least part of the population is dependent on dispensing doctors (DDs) to receive prescribed medication, especially in rural areas. Approximately 840 DDs supplement the drug supply of 1,357 public pharmacies throughout the country (Federal Competition Authority, 2018). Although DDs have a long history in Austria, they are regarded with ambivalence; the Medical Association and the Chamber of Pharmacists have had

opposing positions for many years (e.g. Bunda, 2019; Reisinger and Pint, 2008). Arguments in favour of DDs are that they are positively received by the general public (two thirds of the Austrian population consider DDs helpful (Bunda, 2019) and that they help to solve supply gaps (closures of DDs were associated with a deterioration of the supply situation for 87% of the respondents). Furthermore, the dispensing system offers monetary incentives for young doctors to settle in rural areas (Riedler, 2014) – an argument which is gaining in importance, since warnings of an extinction of rural physicians are becoming more frequent (Kriegel et al.,

2016). On the other hand, the advantages of public pharmacies over DDs are emphasised: Pharmacies have longer opening hours and a wider range of products – which may explain why 91% of the population considers a pharmacy in place of residence to be important (Reisinger and Pint, 2008). Additionally, the separation of prescription and dispensation is seen as an important control function in medicinal distribution (Chamber of Pharmacists, 2019). These arguments contribute to a lively political and economic discussion about the advantages of the respective systems which does not only pertain to Austria (Eggleston, 2012; Hassali, 2015; Shafie et al., 2012).

Against this background, science has turned to the topic of dispensing regimes. The interest ranges from historical, economic and theoretical considerations on the separation of prescription and dispensation (Eggleston, 2012) to coverage and shifts in pharmacies' portfolios (Bannert and Iselin, 2015), dispensing and prescribing patterns of physicians (Goldacre et al., 2019; Iizuka, 2008; Lim et al., 2011; Liu et al., 2009; Trottmann et al., 2016; Weiss et al., 2016; Wilcock, 2001) with special regard to the health care expenditures (Beck et al., 2004; Kaiser and Schmid, 2016; Reich et al., 2012; Trottmann et al., 2016; Wilcock, 2001) and to the effectiveness of dispensing regimes (Lim et al., 2014) e.g. in the prevention of adverse events (Blozik et al., 2015; Meyer, 2016; Munger et al., 2014) or adherence (Huber and Reich, 2016). Although the majority of international scientific evidence is likely to emphasise that DDs have some disadvantages such as higher health expenditures – discussed as provider-induced-demand or agency problems (Lim et al., 2009) – the findings are still surprisingly mixed (Goldacre et al., 2019; Trottmann et al., 2016). This is possibly due to the different national legal frameworks, which influence dispensing behaviours, or to methodological differences between the studies. In summary, separation and integration of prescription and dispensation both seem to have advantages and disadvantages, with scientific literature frequently pointing to the importance of DDs for the coverage of drug supply in rural areas (e.g. Lim et al., 2014). It is remarkable that patients' ideas and wishes regarding drug dispensation only play a minor role in this discourse (exceptions are Faisst et al., 2000; Hassali, 2015; Mung-

er et al., 2014; Perri et al., 1987; Pink et al., 1989; Sunderland et al., 2006). Looking at the majority of the literature mentioned above, the quality of the health care system seems to be independent of the patient perspective on this issue. However, a few, more recent international studies including measures of patient preference also provide conflicting results: for example, the population in Malaysia was shown to be in favour of a separation of prescription and dispensation (Hassali, 2015) and assumes quality improvements, while the respondents to a Swiss study reported to be very satisfied with both pharmacies and DDs (Faisst et al., 2000). A study from the USA (Munger et al., 2014) concludes that patients see benefits from DDs as well as prescription-dispensation separation, indicating a supplementary character of both dispensing systems (also Sunderland et al., 2006). Apart from these results, the preferences and attitudes of health care system users are rarely taken into account in the debate on separation or integration of medication supply. To our knowledge there is no study that asks about the circumstances why patients or users of the health care system prefer to receive medication from the physician. Therefore, the aim of this article is to investigate determinants of older people's approval of dispensing doctors to understand under which conditions they become more important.

We base our assumptions on Eggleston's economic theory, which postulates that with increasing the perceived travel costs (these include not only the monetary costs, but all personally perceived costs, such as time or even pain one has on the way to the pharmacy) in relation to human resources, the preference for integration (= DDs) increases (Eggleston, 2012). The author himself gives an example: *'When a patient has a chronic disease, the travel costs associated with frequent adjustment of prescriptions may also weigh in favor of integrating some diagnosis and dispensing functions.'* Against this background, we assume that a poor state of health, in particular (which can be interpreted as a reduction in personal mobility and a simultaneous increase in travel costs, possibly due to more frequent visits to the doctor) increases the personal preference for DDs. Whereas so-called supporting factors (local pharmacy, the possibility to use a car and social support),

which expand the personal resources or lower travel costs reduce the preference for DDs.

MATERIALS AND METHODS

The analysis uses data from the “Gesundheitsbarometer Alter NÖ 2019”, which is a health-related standardised, representative telephone survey conducted throughout Lower Austria in the spring of 2019. Sampling was carried out using a random selection stratified by community size with additional screening according to age. The sample comprises 2,042 people aged 60 years and older. Data were analysed using a logit model and analysis was carried out using IBM SPSS version 24.

The dependent variable is measured by asking about the personal importance of DDs with the possible answers “very important”, “quite important”, “less important” or “not important at all”. These responses are dichotomised: (1) Reported preference for DDs (options ‘very’ and ‘quite important’) and (0) no or little reported preference for DDs (options ‘less’ and ‘not important’).

Explanatory variables can be divided into three subject areas.

- *Health indicators:* It is assumed that the preference for DDs increases with poor health status. Health status is measured by three variables: an index of functionality regarding activities of daily living (ADL) with a value range of 0–10 (high to low functionality), the number of chronic diseases (20 diseases were enquired about leading to a value range of 0–20), and perceived age. The last indicator may seem surprising, but it is the result of a complex self-assessment process. In gerontological research, perceived age is considered as a valid indicator of the general status, taking health, psychological and social aspects into account (Bowling et al., 2005; Spuling et al., 2013). Feeling the same age or younger than the chronological age (= variable age comparison) is coded as the reference category (1) and represents a positive assessment of one’s general status.
- *Supportive factors,* when fulfilled, should reduce the importance of DDs, as they enable independent drug supply or reduce travel costs. In the statistical model, the following are used as indicators: the abil-

ity to drive a car, as it allows to reach more distant pharmacies (which is especially important in rural areas as often found in Lower Austria), the presence of a pharmacy in the place of residence, and social support in case of illness (e.g. to pick up medication).

- Gender and chronological age are included as *control variables*.

RESULTS

The analysed sample includes 1,876 observations due to missing values. With Nagelkerke’s R^2 at 0.124 and the Hosmer–Lemeshow test at 0.71, the model is deemed acceptable. Results are shown in table 1. The logistic model indicates that with a one point drop in functionality (ADL) the probability of preferring a DD increases (OR: 1.14; 95% CI: 1.05–1.25). The age comparison is also influential (OR: 2.03; 95% CI: 1.46–2.83), while the number of chronic diseases is not significantly powerful. Testing supportive factors, the presence of a pharmacy at the place of residence is significantly associated with a lower likelihood of having a preference for DDs (OR: 0.44; 95% CI: 0.35–0.55), regardless of the other factors. The ability to use a car by oneself also reduces the likelihood to report a preference for DD. Consequently, the inability to use a car increases the chance of considering DDs as important (OR: 1.54; 95% CI: 1.13–2.09). No statistically significant relationship can be found with either social support, chronological age or gender.

DISCUSSION

Based on survey data of older adults in Lower Austria, this article examines the relationship between preference for dispensing doctors and determining factors. Firstly, the results show that having a pharmacy at the place of residence as well as the ability to independently use a car reduces the probability of preferring DDs. Both are understandable when we look at Lower Austria – which encompasses large-area communities with a small number of inhabitants and a varying degree of public transport. It is therefore assumed that, travel costs to the nearest pharmacy are relatively

Table 1 – Logistic model of determinants of older people's preferences for dispensing doctors

		Odds ratio	95% Ci		Wald	Sig.
Health indicators	Functional index	1.148	1.051	1.254	0.298	0.002
	Number of chronic diseases	1.021	0.947	1.101	50.671	0.585
	Age comparison (Ref. <i>Feeling the same age or younger</i>)	2.039	1.468	2.831	1.916	0.000
Supportive factors	Car usage (Ref. <i>independent</i>)	1.545	1.138	2.099	0.016	0.005
	Presence of pharmacy (Ref. <i>No pharmacy in village</i>)	0.441	0.352	0.553	7.763	0.000
	Social support (Ref. <i>No/little support</i>)	1.032	0.638	1.669	18.090	0.899
Control variables	Chronological age	1.011	0.996	1.026	1.379	0.166
	Gender (Ref. <i>men</i>)	1.133	0.920	1.396	0.025	0.240
	X ² /df/p	174.478/8/0.000				
	Nagelkerkes R ²	0.124				
	n	1876				
	Hosmer–Lemeshow	0.71				

high for many of the respondents. This association is in accordance with a study by Sunderland et al. (2006) which also shows that travel and fuel costs are perceived as barriers to accessing medication by patients. Secondly, our study reveals that increasing limitation of functionality in everyday life leads to elderly people preferring DDs (probability increases by 15% per unit), while the number of chronic diseases does not influence the preference. Chronic diseases cannot be equated with mobility impairment per se, whereas the index of functionality regarding everyday activities is an indicator of a person's range of action. Additionally, a negative age comparison (feeling older than you are) – i.e. a negative assessment of the subjective general status – has a particularly strong influence on the attitude towards DDs. This is understandable, considering that feeling older than one's chronological age is usually associated with a negative state of health (Spuling et al., 2013), plus the validity of prescriptions and number of dispensations per prescription are normally limited in Austria. The combination of these aspects leads to higher travel costs due to more frequent visits to the doctor and pharmacy.

In summary, the preference for DDs is strongly framed by the accessibility of a pharmacy and thus follows the theoretical frame of Eggleston (2012) – which refers to the question of integration or separation of prescription and dispensation on the factor of travel costs. Bannert and Iselin (2015) state that DDs provide better pharmaceutical coverage in rural areas where pharmacies cannot exist, and Weiss et al. (2016) note that DDs see themselves as a 'one-stop shop' and point to 'reduced travel costs and more accessible for rural' patients. The present study confirms that patient preference for DDs increases under factors that can be seen as an extension of perceived travel costs, which supports the above-mentioned studies. Despite ambiguous scientific findings on the advantages/disadvantages of DDs (Lim et al., 2009), our study indicates a supplemental structure between both dispensing systems. From the (elderly) patient's point of view, the combination of the two systems is beneficial as it increases the density of medication supply. A pharmacy at the place of residence can only outweigh the preference for DDs if it is accessible for older people – taking low (monetary

and personally perceived) travel costs into account.

CONCLUSIONS

As the state of current research shows, there is a lively scientific, but also political debate about the advantages and disadvantages of DDs. Little attention is paid to the wishes and ideas of older patients. The present study points out that factors restricting mobility or increasing (monetary and personally perceived) travel costs play a role in the preferences of the population. In the end, the aim must be to ensure the best possible supply of

medication, which means to improve access to medicines in all communities – in particular where there is no pharmacy within a reasonable distance for people with health problems or those with restricted mobility. In these cases, DDs can be an adequate answer.

Conflict of interests

The authors have no conflict of interests to declare. The work has not been published previously or submitted elsewhere for review and copyright transfer.

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