

ORIGINAL RESEARCH

Patients' use of and attitudes towards self-medication in rural and remote Slovenian family medicine practices: a cross-sectional multicentre study

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ABSTRACT

Introduction: Self-medication is very common in the general population, but its prevalence can differ according to the place of residence. The aim of this study was to determine the prevalence of self-medication in patients attending rural and remote family physicians, and to detect the important factors that are associated with it.

Methods: A cross-sectional multicentre study was performed in 24 rural and remote family medicine practices in Slovenia was performed. The aim was to include 720 patients who visited their family physicians on a particular day. The authors used a validated questionnaire on self-medication, which consisted of questions about demographic characteristics (sex, age, education and working status), questions about health status, questions about self-medication practices, and questions about attitudes towards self-medication. The level of participants' trust in different sources of medical information was measured by a five-point Likert scale. The participants were asked to take into account the year 2013 when completing the questionnaire.

Results: Of 720 invited patients, 371 (51.5%) completed the questionnaire. There were 233 (62.8%) women in the sample. The mean age of the participants was 48.1 (± 15.1) years. Self-medication was practised by 300 (80.9%) participants. In multivariate analysis, the variables independently associated with self-medication were information on self-medication obtained from pharmacists, and information on self-medication obtained from relatives. Additionally, some other variables had high odds ratios such as information on self-medication obtained from books, information on self-medication obtained from media, and reason for self-medication: burdening physicians.



Conclusions: The practices of self-medication in rural Slovenia as reported by patients can be defined as moderately safe. People tend to seek more information on self-medication but the main sources for this are lay informants. Further studies are needed to explore the safety of such practices.

Key words: cross-sectional study, prevalence, self-medication, Slovenia.

Introduction

Self-medication is defined as the use of medicines without medical supervision to treat one's own ailment¹. Usually it is the first choice of self-treatment when faced with the symptoms of disease², so self-medication is very common; it is estimated that around 80% of people use drugs and other substances in this way³⁻⁵. It is therefore obvious that the majority of patients in family medicine use self-medication when experiencing a deterioration in their health.

The general public's view on the safety of self-medication is that drugs and remedies for self-medication are completely safe and can be used without any precautions⁶. However, this can result in inappropriate use, a manifestation of serious side effects, or dangerous interactions with conventional medicines^{7,8}.

In Slovenia, the national healthcare system is based on a combination of the Beveridge and Bismarck models; the Bismarck insurance model of financing healthcare is used, but for political reasons there is only one insurance company in Slovenia – the National Health Insurance Institute. Every resident of Slovenia is insured through their employment status, or, if unemployed, through local communities. Compulsory health insurance covers over 80% of all healthcare costs and, through the purchase of a voluntary insurance top-up payment, the remaining healthcare costs and additional services provided to the customer above the basic level can also be covered. Preparing the network of healthcare institutions is the responsibility of the state, comprising public primary healthcare centres, private family physicians and dentists, pharmacies, specialist services and public hospitals^{9,10}.

Primary healthcare in Slovenia consists of family physicians, paediatricians, gynaecologists and dentists. Family physicians serve as partial gatekeepers, as the majority of secondary and tertiary healthcare is available only through a referral⁹. The drug market in Slovenia is regulated by state legislation and most drugs are available only on prescription. The medications and remedies available freely in pharmacies and specialised stores are herbal drugs, vitamins and minerals, topical anti-rheumatics, lower strength oral non-steroidal anti-inflammatory drugs, lower strength oral antihistamines, and some non-opioid analgesics (ie paracetamol)³. People in Slovenia can therefore practise self-medication with over-the-counter (OTC) drugs, which can be bought only in pharmacies, as well as different herbal remedies, which can be bought in pharmacies as well as in some specialist shops⁴. Some remedies and OTC drugs can also be bought on the internet¹¹. In addition, it has been shown that people practise self-medication with prescribed drugs which were only partly used at the time of prescription and were then stored in home medicine chests¹².

It is known that the place of residence significantly affects assessment of health status, healthcare utilisation and health-related behaviour¹³. It can therefore be expected that self-medication behaviour could also differ between urban and rural areas¹⁴.

Self-medication in rural areas has already been studied in several countries, with reports of its prevalence ranging from 20 to 80%¹⁵⁻¹⁹. It was found that self-medication was associated with several demographic characteristics such as female sex¹⁵, the absence of chronic diseases¹⁵, lower education¹⁴ and younger patients¹⁸. However, previous studies did not explore factors such as the reasons for self-medication and its sources in rural areas.



As previous Slovenian studies on self-medication showed that people practise it very often, and sometimes not in a safe way^{3,4,20,21}, the authors wanted to explore these issues in rural populations as well. In this study the authors wanted to determine the prevalence of self-medication in patients attending rural and remote family physicians and detect the important factors that were associated with it.

Methods

Type of study

A cross-sectional multicentre study in rural and remote family medicine practices in Slovenia was performed. The term 'rural' in health care is difficult to define, as it differs in different countries; several other similar terms are also used, such as 'remote', 'peripheral' and 'isolated'²². In general, rural and remote practices are defined as practices outside urbanised areas, where primary health care is provided by a small number of family physicians, with limited access to specialists and advanced diagnostic equipment²³. In Slovenia, there is no official definition of rural practice. However, the one most often used is a definition produced by the Section for Rural and Remote Family Physicians, which states that rural and remote family practices in Slovenia are those located in rural areas, outside the larger settlements (in places with less than 5000 inhabitants and in places that are remote from major cities by at least 15 km); or in a very rural, agricultural, mountainous or sparsely populated area; or in remote areas (>20 km to the nearest hospital and/or emergency unit)²².

The study took place from 1 May to 30 June 2014. All the participants gave informed consent for their participation in the study.

Settings

The study took place in rural and remote family medicine practices in Slovenia. According to data from the Slovenian Section for Family Physicians working in Rural and Remote

Areas, there are currently 207 family medicine practices in rural and remote parts of Slovenia. From these, a stratified sample (according to Slovenian region) was drawn ($N=50$). These practices were contacted through email. In cases of no response, one of the researchers made personal contact by phone.

Participants

The participants were patients coming to their family physician on a particular day. The inclusion criteria were as follows: age 18 years or more, and informed consent for their participation in the study. Participation was voluntary and anonymous. The exclusion criteria were as follows: patients with dementia, psychosis, or in an emergency situation, and age less than 18 years.

Data collection

Self-medication was defined as the use of prescription drugs from home medicine chests, the use of OTC drugs available in Slovenia, the use of herbal drugs and remedies, the use of vitamins and/or minerals, and the use of homeopathic drugs. A validated questionnaire on self-medication was used, which had been used previously in Slovenian studies^{3,4}. It consisted of questions about demographic characteristics (sex, age, education and working status), questions about health status, questions about self-medication practice, and questions about attitudes towards self-medication. The level of participants' trust in different sources of medical information was measured by a five-point Likert scale.

The participants were asked to take into account the year 2013 when completing the questionnaire.

The questionnaires were sent by post to the family physicians that had agreed to participate in the study. Each family physician was asked to distribute 30 questionnaires to consecutive patients on one practice day. The patients filled in the questionnaires themselves in the doctor's surgery and returned them to a practice nurse. The physicians then returned the questionnaires to the researchers by post.



Statistical analysis

The statistical analysis was carried out using the Statistical Package for Social Sciences v22.0 (SPSS, <http://www.spss.com>). The researchers performed a χ^2 test and a *t*-test for independent samples. Also carried out was a binary logistic regression, including all the variables that were statistically significant in the bivariate analyses. A value of $p < 0.005$ was regarded as statistically significant.

Ethics approval

The study was approved by the National Ethics Committee of the Republic of Slovenia (No. 131/02/14).

Results

Of the 50 invited family physicians, 24 (48.0%) participated in the study, and 371 (51.5%) patients completed the questionnaires.

Sample description

There were 233 (62.8%) women in the sample (Table 1). The mean age of the participants was 48.1 (± 15.1) years.

In 2013, the participants had on average of 2.0 (± 0.8) health problems. Almost half of the participants, 162 (43.7%), reported having at least one chronic disease.

Self-medication practices

In 2013, self-medication was practised by 300 (80.9%) participants, of which 193 (64.3) were women (Table 1). Most of the participants reported using herbal drugs for self-medication, decided to self-medicate on the basis of their own experience, got the information on self-medication from friends, bought the substances for self-medication in drugstores, self-medicated because they did not want to bother their physician, self-medicated when experiencing health problems, and thought that self-medication was safe only with appropriate information (Table 2).

The participants' trust in their family physician as a source of medical information was the highest, followed by trust in pharmacists, and the lowest in the media and traditional healers (Table 3).

Associations between variables and self-medication

Younger participants were more likely to self-medicate ($t = -2.347$, $p = 0.019$). Higher trust in books as sources of medical information was associated with more prevalent self-medication ($t = 2.478$, $p = 0.014$). Self-medication was also more prevalent in participants with higher education, in those who thought that self-medication was safe only with the appropriate information, those who obtained information from pharmacists, friends, relatives, books and the media, those who practised self-medication due to low trust in their physicians, those who did not want to burden their physicians, those who already knew the course of their disease, those who used self-medication for prevention, and those who used self-medication when symptoms occurred (Table 4). Other variables did not show any statistically significant differences in bivariate analyses.

In multivariate analysis, the variables independently associated with self-medication were information on self-medication obtained from pharmacists and information on self-medication obtained from relatives. Also, some other variables had high odds ratios such as information on self-medication obtained from books, information on self-medication obtained from the media and reason for self-medication: burdening the physicians (Table 5).

Discussion

This study showed that self-medication is a very common practice in rural settings and that people mostly use herbal drugs and remedies and OTC drugs. It also showed that advice from pharmacists and lay people (ie relatives, friends) plays an important role when deciding to practice self-medication.



Table 1: Demographic characteristics of the sample

Characteristic	Number (%) of patients	Number (%) of participants who self-medicated in 2013
Sex		
Male	130 (35.0)	102 (34.0)
Female	233 (62.8)	193 (64.3)
Not given	8 (2.2)	5 (1.7)
Education		
Primary school	49 (13.2)	33 (11.0)
Vocational school	80 (21.6)	63 (21.0)
Secondary school	144 (38.8)	118 (39.3)
University	94 (25.3)	84 (28.0)
Not given	4 (1.1)	2 (0.7)
Employment status		
Employed	231 (62.3)	188 (62.7)
Retired	86 (23.2)	66 (22.0)
Unemployed	37 (10.0)	30 (10.0)
Student	15 (4.0)	15 (5.0)
Not given	2 (0.5)	1 (0.3)

This is the first study in Slovenia on self-medication practice in rural patients in primary health care. A study from 2010 that studied self-medication practices in the general population showed a lower prevalence (51%) of self-medication but, similarly to the present study, reported that herbal drugs were used most⁴. The prevalence of self-medication found in other studies ranged from 20% to 80%¹⁵⁻¹⁹, which points to the fact that self-medication in Slovenian rural areas is very common even when compared to other countries. In Slovenia, there is a rich tradition of knowledge of herbal medicines, which is present mostly in rural areas and among older people²⁴. Because of this, high self-medication practices in those areas were expected.

Most of the participants said that self-medication was safe only with appropriate information, which is also in line with other studies^{3,4,20}. Even though this is a value judgement, because an individual's perception of safety level may differ from that of a professional, it still shows that people are aware of the possible dangers of self-medication and seek information prior to its use. This gives hope that, despite the fact that self-medication in Slovenian rural areas is very common, people use it with caution.

Almost 40% of the participants in the present study reported using prescription drugs from their home medicine chests, which is in line with the findings of another Slovenian study⁴. A study on

home-kept prescription drugs¹² showed that more than 70% of the general population kept leftover prescription drugs at home for further use at their own discretion. Based on other studies it seems that this is a worldwide problem²⁵. Unused prescription drugs accumulated in homes may be misused for recreation, used inappropriately for self-medication of future ailments, or ingested accidentally²⁵. On the other hand, chronic patients also keep prescription drugs for their chronic diseases in home medicine chests. Obviously, there is a need for in-depth studies on the reasons for and practices of retaining prescription drugs at home.

An important reason for practising self-medication was the statement not to burden their physician with their health problems, which was found also in other studies^{3,4,7}. Several other studies showed that responsible self-medication (ie taking medicines that do not require prescriptions to treat symptoms) might reduce the burden on health care systems^{26,27}. On the other hand, previous studies also showed that people thought that self-medication was completely safe²⁸. Despite the finding that a lot of participants said that they practise self-medication when faced with self-limiting symptoms or diseases, this could present a problem. In Slovenia, there is a shortage of family physicians, especially in rural areas²⁹, which could lead to a wish by people not to burden their physicians. Of course, this could be potentially dangerous as important medical conditions could be recognised late.



Table 2: Self-medication practices

Variable	Number (%) of participants
Self-medication with	
Prescription drugs	139 (37.5)
Over-the-counter drugs	253 (68.2)
Herbal drugs and remedies	299 (80.6)
Homeopathic drugs	30 (8.1)
Vitamins and minerals	251 (67.7)
Who sold/gave them substances?	
Pharmacy	282 (76.0)
Traditional healer	27 (7.3)
Homeopath	23 (6.2)
Relatives	89 (24.0)
Internet	27 (7.3)
What stimulated them to use them?	
Personal experience	230 (62.0)
Lay advice	174 (46.9)
Media	59 (15.9)
Pharmaceutical advice	206 (55.5)
Physician's advice	219 (59.0)
Nothing in particular	36 (9.7)
Source of information	
Physician	139 (37.5)
Pharmacy	163 (43.9)
Traditional healer	23 (6.2)
Homeopath	18 (4.9)
Friends	185 (49.9)
Relatives	178 (48.0)
Books	148 (39.9)
Media	105 (28.3)
Reason for self-medication	
Does not trust the physician	15 (4.0)
Does not want to bother the physician	216 (58.2)
Physician does not want to discuss this topic	19 (5.1)
The course of the disease is familiar	214 (57.7)
Habit	52 (14.0)
When did they self-medicate?	
To prevent disease	232 (62.5)
When symptoms occurred	245 (66.0)
When the prescribed treatment was not effective	52 (14.0)
Safety of self-medication	
Totally safe	22 (6.2)
Safe only with appropriate information	251 (70.3)
Always dangerous	60 (16.8)

The present study also showed that the participants valued advice on self-medication from different sources, especially from pharmacists and relatives, as was also shown in the Slovenian study³. A study from Pakistan¹⁴, on the other hand, showed that people in rural areas seek advice mainly from their physicians. It seems that, in Slovenia, lay advice from

relatives and friends is an important source of information. This could be potentially dangerous as lay people may not have the right information, and their advice could therefore be a potential source of health risk.



Table 3: Levels of trust in different sources of medical information

Source	Mean \pm standard deviation
Family physician	4.5 \pm 0.7
Pharmacist	4.1 \pm 0.8
Homeopath	2.7 \pm 1.0
Traditional healer	2.3 \pm 1.0
Friends	2.7 \pm 0.9
Parents	2.7 \pm 0.9
Books	3.3 \pm 0.9
Media	2.3 \pm 0.8

Table 4: Associations between self-medication and some characteristics of the sample

Characteristic	χ^2	<i>p</i>
Secondary education or higher	5.990	0.017
Self-medication safe only with appropriate information	28.229	<0.001
Information on self-medication obtained from pharmacists	13.874	<0.001
Information on self-medication obtained from friends	8.371	0.005
Information on self-medication obtained from relatives	11.698	0.001
Information on self-medication obtained from books	20.661	<0.001
Information on self-medication obtained from media	10.356	0.001
Reason for self-medication: low trust in physicians	6.746	0.023
Reason for self-medication: burdening the physicians	12.526	0.001
Reason for self-medication: known course of disease	24.535	<0.001
Reason for self-medication: for prevention	7.895	0.010
Reason for self-medication: when symptoms occur	17.366	<0.001

Table 5: Multivariate analysis[†] for the prevalence of self-medication controlled for sex and age

Independent variable	Odds ratio	95% confidence interval for odds ratio	<i>P</i>
Male sex	1.309	0.368–4.663	0.677
Higher age	0.981	0.938–1.026	0.412
Higher trust in books as sources of medical information	1.579	0.797–3.128	0.191
Secondary education or higher	0.431	0.059–1.948	0.247
Self-medication safe only with appropriate information	1.769	0.449–6.981	0.415
Information on self-medication obtained from pharmacists	6.238	1.462–26.609	0.013
Information on self-medication obtained from friends	0.467	0.106–2.056	0.314
Information on self-medication obtained from relatives	4.626	1.067–20.044	0.041
Information on self-medication obtained from books	4.114	0.699–24.220	0.118
Information on self-medication obtained from media	1.928	0.305–12.189	0.485
Reason for self-medication: low trust in physicians	0.135	0.009–2.061	0.150
Reason for self-medication: burdening the physicians	1.973	0.417–9.334	0.392
Reason for self-medication: known course of disease	1.427	0.289–7.035	0.662
Reason for self-medication: for prevention	0.481	0.071–3.243	0.452
Reason for self-medication: when symptoms occur	0.585	0.138–2.474	0.466

[†] Nagelkerke *R* square = 0.403, $\chi^2 = 38.356$, *p* = 0.001



This study has several limitations. The first is the problem of the definition of rural family medicine practices in Slovenia. As there is no formal definition, and no formal list of rural practices exists, the researchers had to rely on the data in the Section for Rural and Remote Family Physicians. It is possible that their data are incomplete, so the authors might have missed some rural practices when inviting them to participate. This could therefore be a possible source of selection bias. Another limitation that could also present a potential selection bias is the fact that only half of the invited patients participated, and it is also possible that the physicians did not invite 30 patients, but fewer. As data on the non-respondents was not collected, possible differences could not be analysed. Therefore, one should be careful when generalising the results to the whole rural population of Slovenia.

Conclusions

People residing in the rural areas of Slovenia very commonly practise self-medication. In fact, the prevalence of self-medication in these areas is one of the highest in the world. Most people reported that self-medication was safe only with the appropriate information, but on the other hand they commonly used prescription drugs of their own volition and they frequently did not go to see their physicians when ill because they did not want to burden them. The researchers therefore conclude that self-medication in rural Slovenia is moderately safe.

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