

A Study of Community Pharmacy Practice

3. Non-Prescribed Medicines Sales and Counselling

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ABSTRACT

The sale of non-prescription, over-the-counter (OTC), medicines was examined in 40 community pharmacies in Dublin, Ireland. During the period of observation in each pharmacy, records were kept of each OTC medicine sold, the age and sex of the purchaser, whether the medicine was sold with advice or on demand and which staff member sold it.

A total of 632 OTC medicines were sold during the study, of which 22.3% were sold with advice. Of the sales made by pharmacists, a higher proportion were advised sales (40.8%).

Almost three times as many medicine purchases were made by women as by men, though the proportion of purchases which was advised did not differ significantly between them. Customers aged over 65 bought proportionately more OTC medicines but were found to have received less advice than customers in other age groups.

Key words: Drugs, over-the-counter; Ireland; Patient counselling, pharmacist; Pharmacies, community; Pharmacists, community; Workload.

Introduction

In Ireland, all non-prescription, over the counter (OTC) medicines may be sold by pharmacies. Some are licensed to be on general sale and may be sold from any non-pharmacy outlet. The majority of non-prescription medicines are, however, confined to sale from pharmacies.

To assess the contribution of pharmacists in Ireland to the sale of non-prescribed medicines to the public, a study was conducted to determine, quantitatively, the sale of OTC medicines, the advice given by pharmacy staff, and the characteristics of those buying OTC medicines. The study was part of a larger study of the working conditions and practices of Irish community pharmacists [1].

Methods

The study was conducted by observation in a random sample of 40 independent community pharmacies in Dublin County in the Republic of Ireland, as described previously [1], and took place during the months of January to March, 1985.

In each pharmacy, the sale of OTC medicines was observed for a period of between one-and-

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a-half and two hours, either in the early or late morning or the early or late afternoon. The periods of observation were allocated systematically to the pharmacies so that each of the four parts of the day mentioned above was included ten times. The hours of observation varied between pharmacies as a number of different studies had to be completed within each study day and the length of each day varied with the number of hours for which the pharmacy was open. The day in each pharmacy on which the study was conducted was allocated systematically in consultation with the pharmacy proprietor.

During the period of observation in each of the forty pharmacies, OTC medicine sales were recorded. The name of each OTC medicine sold was noted, whether it was sold with advice or on demand and which staff member sold it. Advice was considered to have been given when staff, either voluntarily or in reply to a customer query, recommended a medicine, counselled on the medicine or counselled on the condition for which the medicine was purchased. An affirmative answer to a customer query "Is this good?" was not considered as advice.

The sex of the customer was recorded for each medicine sold and customers were assigned by visual estimation to one of four age groups: under 20, 20-44, 45-65 and over 65.

Pharmacy staff were classified into three categories — pharmacists, a lower grade of qualified person known as assistants to pharmaceutical chemists and other staff who were mainly sales assistants.

The location of each pharmacy was categorised as either urban or suburban depending on the range of shops and commercial services in the area. Urban areas were characterised by shops and premises supplying a wide range of goods and services while local shops and neighbourhood shopping areas with a smaller range of shops were classified as suburban.

Data on the age distribution of the population in Dublin in 1985 were obtained from the Labour Force Survey of 1985 [2].

The hourly rate of OTC medicine sales in each pharmacy was calculated over the total number of hours of OTC sales observation in the pharmacy. Mean hourly rates of sales were calculated for each day of the week and for each part of the day. Mean values were derived for the proportion of medicine sales made with advice from pharmacy staff and the proportion of advised sales for which pharmacists gave the advice. All mean values were calculated as the mean of the values for each of the 40 pharmacies.

Non-parametric statistical tests were used as the distribution of the hourly rate of OTC medicine sales was not normally distributed. Tests used were chi-square, the Z test of proportions, the Mann-Whitney U test and the Spearman rank correlation procedure. A significance level of 0.05 as used for all tests. A measure of the spread of values around the median OTC sales rate is given by the interquartile range: the difference between the 75th and 25th percentile values.

Results

OTC Sales

The number of OTC medicines sold in 76 hours of observation was 632. The distribution of the hourly rate of OTC sales was positively skewed with a mean value of 8.2; the median value was 7.1 and the interquartile range was 6.

There was a significant difference between urban ($n = 20$) and suburban ($n = 20$) pharmacies with respect to the hourly rates of OTC medicine sales (Mann-Whitney U Test, $U = 126.5$, $p < 0.05$): the mean hourly rates were 9.5 and 7.0 respectively.

The mean hourly rate of sales was found to be higher on Mondays than on other days of the week and higher during the late morning period than at other times during the day (Table 1).

Of the 632 medicines sold, 211 were sold by pharmacists, 94 by assistants to pharmaceutical

Table 1 Rate of OTC medicine sales classified by the day of the week and the part of the day

Day of the week	Mean OTC sales per hour	Part of the day	Mean OTC sales per hour
Monday	10.7	Early Morning	6.1
Tuesday	6.8	Late Morning	10.5
Wednesday	7.5	Early Afternoon	9.3
Thursday	8.0	Late Afternoon	7.2
Friday	7.4		
Saturday	9.4		

chemists and 327 by 'other' staff (mainly sales assistants). The number of staff working in the 40 pharmacies surveyed was 205, of whom 32.2% were pharmacists, 14.6% were assistants to pharmaceutical chemists and 53.2% were 'other' staff. There was no statistical difference between the distribution of staff who sold OTC medicines and the overall distribution of staff in the pharmacies surveyed.

Advice was given with 141 (22.3%) of the medicines sold. In six pharmacies, no advice was given with any medicine, while in one pharmacy advice was given with 80% of the OTC medicines sold. The percentage of sales with which advice was given was similar in pharmacies in urban and suburban locations (22.8% and 21.8% respectively).

Table 2 Number and percent of OTC sales in each therapeutic category

Therapeutic category	N	%
Analgesics	138	21.8
Vitamins and tonics	96	15.2
Coughs	73	11.6
Nose and throat	67	10.6
Skin	59	9.3
First aid	30	4.7
Colds	29	4.6
Antacids	26	4.1
Laxatives	21	3.3
Health supplements	20	3.2
Mouth	14	2.2
Eye and ear	12	1.9
Other	47	7.4
All Categories	632	99.9

The number of OTC medicines which were also available through non-pharmacy outlets was 135. For these medicines, 6.7% were sold with advice compared with 26.6% for medicines available only through pharmacies ($Z = -4.926$; $p < 0.001$).

Pharmacists counselled customers in 40.8% of the medicine sales they made, assistants to pharmaceutical chemists counselled in 21.3% of the sales they made and 'other' staff counselled in 10.7% of the sales they made. A chi-square analysis revealed that pharmacists counselled proportionately more often while 'other' staff counselled proportionately less often ($\chi^2 = 66.889$; $df = 2$; $p < 0.001$).

Table 2 presents the therapeutic categories of the 632 medicinal products sold. Among the thirteen categories, the largest number of sales was for analgesics, accounting for 21.8% of OTC medicine sales. The 'Other' group comprised ten categories such as haemorrhoids and travel sickness but since each one accounted for less than 1% they were combined.

A total of 255 different branded medicines (including pharmacy own-brands) were recorded in the 632 sales, equivalent to a mean of 2.5 sales per medicinal product. Among analgesics, 22 medicinal products were recorded in 138 sales, a mean of 6.3 sales per product. One pharmacy-only medicine accounted for 35% of all analgesic sales and 7.6% of all OTC medicine sales.

The 13 therapeutic categories were combined into six groups. There was no overall statistical difference found between staff with respect to the sales of the six therapeutic groups (Table 3), though some differences were seen in the sales of some therapeutic groups. Assistants to pharmaceutical chemists sold vitamins and tonics

Table 3 Percent of sales made classified by staff member and advised sales as a percentage of total sales made in each therapeutic group

Therapeutic group	Staff member			Total sales (%)	Advised sales* (%)
	Pharmacists (%)	Assistant to pharmaceutical chemists (%)	Others (%)		
Coughs, colds	33.2	22.3	31.8	30.9	34.9
Analgesics	18.0	19.1	25.1	21.8	10.9
Vitamins and tonics	15.2	22.3	13.1	15.2	22.9
Alimentary	10.4	6.4	10.7	10.0	22.2
Skin	9.5	14.9	7.6	9.3	16.9
Other	13.7	14.9	11.6	12.8	14.8
Total	100.0	99.9	99.9	100.0	

* $\chi^2 = 31.798$; $df = 5$; $p < 0.001$.

and skin preparations more frequently than pharmacists or 'other' staff, while 'other' staff sold analgesics more frequently than pharmacists or assistants to pharmaceutical chemists.

Significant differences were found between therapeutic groups in the proportion of sales which were advised ($p < 0.001$) (Table 3.) Proportionately more advice was given with cough, cold and related preparations (34.9%) and proportionately less with analgesics (10.9%). There was no statistical difference between pharmacists, assistants to pharmaceutical chemists and 'other' staff with respect to the therapeutic group for which they gave advice.

OTC Customers

The number of OTC medicines purchased by women was 457, representing 72.3% of medicine sales made. The female to male ratio in OTC purchases was 2.6:1. Over half of the medicines (54.1%) were purchased by customers aged 20–44 and 20.3% by those aged 45–65. There was no statistical difference between the proportion of sales made to male and female customers in different age groups.

The age distribution of OTC customers was compared with that of the population in Dublin (Table 4). Because the age distributions had different class intervals, the age groups 0–19 and 20–44 were combined for OTC customers. Customers aged over 65 were found to have bought proportionately more OTC medicines and those aged less than 45 proportionately less ($p < 0.001$).

The percentage of OTC medicine purchases made by men which was advised was 20.6%, while for women 23.0% of their OTC medicine purchases were advised. The difference between them was not statistically significant. Furthermore, there was no statistical difference between medicine purchases made by men and

Table 5 Percent of OTC sales in each therapeutic category and percent of advised sales classified by age of customer

Therapeutic category	Age group*			
	< 20 n = 52 (%)	20–44 n = 342 (%)	45–65 n = 128 (%)	> 65 n = 110 (%)
Coughs and colds	34.6	34.2	25.8	24.5
Analgesics	25.0	22.2	21.1	20.0
Vitamins and tonics	3.8	16.1	15.6	17.3
Alimentary	5.8	7.9	14.1	13.6
Skin	17.3	9.4	8.6	6.4
Other	13.5	10.2	14.8	18.2
Advised sales**	15.4	28.7	16.4	12.7

* $\chi^2 = 24.718$; $df = 15$; $p = 0.05$.

** $\chi^2 = 17.772$; $df = 3$; $p < 0.001$.

women in each therapeutic group or when the number of advised sales was analysed by therapeutic group.

The differences between age groups in the number of medicines purchased in each therapeutic group was just significant ($p = 0.05$) (Table 5). Lower proportions of cough and cold remedies and higher proportions of alimentary products were bought by customers aged 45 and over than by those aged less than 45. Proportionately more skin preparations, but fewer vitamins and tonics were bought by those aged less than 20 than by customers in other age groups.

Customers aged 20–44 were found to be more likely to obtain advice when buying medicines, while those aged over 65 were less likely to receive advice ($p < 0.001$) (Table 5).

Discussion

Before consideration of the results, it is necessary to take into account several factors associated with the design of the study. Counselling on general health matters which was not accompanied by the sale of an OTC medicine was not included in the study. There was no distinction made between advice or recommendations sought by customers and advice given voluntarily by pharmacy staff or between advice on the medicine and counselling on the condition for which the medicine was bought.

The study also did not distinguish sales which were initially dealt with by one member

Table 4 Comparison of the age distribution of OTC customers and the population in Dublin

Age	OTC customers (%)	Population ^a (%)
< 45	62.3	76.2
45–65	20.3	15.7
> 65	17.4	8.2 ^b
All ages	100.0	100.1

^a Source: Labour Force Survey, 1985 [2].

^b Age Group 65 and over.

$\chi^2 = 89.686$; $df = 2$; $p < 0.001$.

of staff though counselled by another. In such cases, the sale would have been deemed to have been made by the staff member who gave the advice.

The mean hourly rate of OTC medicine sales found in this study yields an estimate of approximately 66 OTC medicine sales in an eight-hour day. Compared with studies in the U.K., this figure is higher than that recorded by D'Arcy et al. (45.6 per day) [3] but lower than found by Phelan and Jepson (76.8 per day excluding general health advice) [4], both of which were self reporting studies of one or more complete working days of unspecified length.

OTC medicine sales were found to vary by location, being higher on average in pharmacies in urban areas than in suburban areas. Similar findings have been reported in the UK [4] and in New Zealand [5].

Just over one-fifth of medicine sales were advised sales in which the customer received some advice on the medicine or on the condition for which the medicine was purchased. Previous studies in the UK [3,4] and New Zealand [5] have reported higher values for advised medicine sales of between 31% [4] and 41% [5], although general health advice accounted for 4.1% of all sales in both of these studies. However a Swedish study on the advisory service of pharmacies [6] found a lower figure of approximately 10% of OTC medicine sales accompanied by advice. The proportion of advice found in the present study yields an estimate of approximately 13 counselling events associated with OTC medication per eight-hour day. From results reported from an Australian study of counselling using both self-reporting and observations [7], a lower figure of 8 OTC-related counselling episodes per day is obtained.

In their study, Phelan and Jepson [4] found that the proportion of sales which was advised was lower in pharmacies in town centres than in pharmacies in suburban areas, though Shaw and Trevean [5] did not find any difference between pharmacies in those locations. The result of the present study did not support the hypothesis that the proportion of counselling differed between urban and suburban pharmacies.

Extrapolating the number of advised medicine sales to the population in Dublin gives a value of 1.55 advised sales per person per year. This figure represents the number of pharmacy counselling events per person per year resulting in the sale of an OTC medicine and com-

pares with an estimated 3.62 general practitioner consultations per year per person in the state [8]. Thus the estimated number of consultations in pharmacies, excluding those on general health matters, is just less than half the number of consultations with general practitioners.

The distribution of medicines by therapeutic group was broadly similar to that found in New Zealand [5] and in the UK [4] as were the findings that advice was less frequent with analgesics and more frequent with cough and cold remedies. Possible reasons for the lower proportion of advice given with analgesics include the fact that some analgesics are heavily advertised to the public and that the main complaint for which they are taken (headaches) [9] might be regarded as a minor ailment. Also, the analysis of medicines sold revealed that there were fewer different analgesic products sold than for other therapeutic classes. Thus the limited number of medicinal products sold, public awareness of product names and the nature of the condition for which they are mainly taken may result in a reduced reliance on pharmacists' advice in medicinal product recommendation and counselling. The high proportion of advice given with cough and cold remedies may be related to the fact that the study was conducted during winter months when coughs and colds may be more prevalent.

The proportion of advice given with skin preparations was lower than average in contrast to the higher than average counselling values reported for skin preparations elsewhere [4,5]. The result may relate to the high proportion of simple emollients and cleansers among the skin preparations sold for which customers may not have sought advice or to a high rate of referral to doctors for skin ailments [4-6] which would not have been included in the proportion of advice given with skin preparations in the present study.

The overall distribution of staff selling OTC medicines was proportionate to the number employed, suggesting that OTC medicine sales were not restricted to one type of staff rather than another. Of the sales they made, pharmacists counselled more often than average and sales assistants counselled less often. In contrast to this study, Hardisty in the UK found that pharmacists sold fewer of the medicinal products which were recommended than did sales assistants [10]. The low proportion of advice given with analgesics in the present study may be related to the finding that sales assistants, who counselled less than other staff, sold more analgesics than others.

The high female to male ratio among OTC purchasers (2.6:1) is in close agreement with figures reported in the studies in the UK by Hardisty (2.6:1) [10] and Christopher et al. (2.4:1) [11]. In their analysis of analgesic purchases in Ireland [12], Corrigan and Byrne found that analgesics were bought mainly by women, especially married women. However, OTC medicine purchasers are not necessarily OTC takers. Christopher et al [11] found that 15% of OTC purchases were for family use and 32% for relatives, friends or neighbours. It is likely, therefore, that some of the purchases made by women were for use by others. Nonetheless, some of the higher incidence of sales to women may be explained by their greater use of medicines [9]. Among sales made to men and women, there was no difference in the therapeutic group of medicines bought or with which advice was given or in the overall proportion of advice given. These results contrast with findings in the UK [10,11] that more women than men buy analgesics.

When compared with the population in Dublin, it was found that significantly more OTC medicines were sold to those aged over 65 and less to those aged under 45. In relation to the elderly, this result is surprising given the disproportionately higher number of those aged 65 and over entitled to free medical and pharmaceutical services under the General Medical Services (GMS) Scheme [13] which covered 26.5% of the population of Dublin in 1985 [14]. One might expect that elderly patients would buy proportionately fewer non-prescribed medicines while obtaining proportionately more medicines free on prescription. The rate of medical consultations and the rate of prescribing has indeed been found [14] to be higher among the elderly than among younger patients. In the study of analgesic purchases in the Republic of Ireland [12], two-thirds of analgesics bought by those aged 65 and over were by prescription compared with one-quarter of analgesics bought by those aged 25 to 34. Studies of the use of non-prescribed medicines have found that use either did not vary [9] or declined [16] with age.

OTC medicine sales to adults aged 20–44 were accompanied by proportionately more

advice than sales to other age groups. Many adults aged 20–44 are also the parents of young children and may consult pharmacists both for themselves and their children. Adults aged 20–44 and young children under 16 are also under-represented among patients in the GMS Scheme [13]. As pharmacists' advice is free, adults may avail of their advice in preference to visiting a doctor.

Customers aged over 65 were found to receive proportionately less advice than those in other age groups. They purchased fewer remedies for coughs and colds, medicinal products which were advised more often than average and they bought more alimentary products which were less advised. The elderly may also have greater opportunities to seek medical advice because of their higher physician consultation rates [15]. Nonetheless, this finding is of concern as the elderly had a higher rate of OTC purchases and have been found to have a higher rate of GMS prescribing [14]. As both OTC and prescription medicines are obtained from pharmacies, the pharmacist is in a unique position to counsel the elderly on their correct use. For the elderly to benefit more from pharmacists' advice, a campaign to increase their awareness of the advisory services of pharmacists could be linked with special continuing education for pharmacists on the particular counselling needs of the elderly.

The proportionately higher number of alimentary products bought by those aged over 65 was also found in the study reported by Hardisty [10]. Christopher et al. found that of OTC preparations used on a long-term basis, those aged 65 and over bought proportionately more alimentary products than younger customers [11].

Conclusion

In conclusion, the study found that just over one-fifth of non-prescribed medicines was sold with advice. Counselling was more frequent with sales made by pharmacists than by other staff. Although male and female customers were advised equally, there was some evidence that elderly customers received less advice than others.

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Received August 1, 1990.
Accepted February 27, 1991.