

Older people's perceptions of prescription medicine costs and related costs: a pilot study in New Zealand

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ABSTRACT

INTRODUCTION: Older people tend to take more medicines and prescription medicine costs may influence medicine adherence.

AIM: The aim of this pilot study was to identify older people's perceptions of prescription medicine costs and related costs in four major cities across New Zealand.

METHODS: A questionnaire was administered to people aged 65 years and older visiting pharmacies in Auckland, Wellington, Christchurch, and Dunedin to identify their perceptions of costs relating to prescription medicines and related pharmacy and general practice services. Data were compared between cities and examined for associations between participants' views on costs and age, sex, income, ethnicity, number of medicines, and monthly cost.

RESULTS: Participants (N=107) received a median of five prescription medicines (range 1–15), at a median cost of NZ\$8.00 (range 0–55.30). Median part-charges for medicines only partly funded by the government were NZ\$6.25 (range 0.60–100.00), and GP consultations ranged from NZ\$0–60.00. Of the participants, 89 (83.2%) thought medicine costs and 63 (58.9%) thought GP consultation costs were reasonable. Participants with median monthly medicine costs of NZ\$8.33–87.00 more commonly perceived medicines as expensive or very expensive ($p=0.001$, Fisher's exact test).

DISCUSSION: Older people in this study mostly viewed their prescription medicines and related costs as reasonable; however, 17% and 41%, respectively, found medicines costs and GP consultation costs expensive. Larger, in-depth studies across New Zealand are needed to determine the sections of the population that find these costs expensive, and to explore how this might affect medicine adherence.

KEYWORDS: Aged; community health services; costs and cost analysis; New Zealand; pharmaceutical preparations

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Introduction

Older people in general have more health problems than younger people and tend to take more medicines.^{1–3} Prescription medicine costs might deter them from collecting their medicines or taking them as prescribed, and this could be detrimental to their health.^{4–10} A review of 19 studies from the United States (US) concluded

that older people with chronic disease and mood disorders are at most risk of taking less medicines because of cost.⁴ Many older people have below-average incomes, and medicine costs (co-payments and additional charges), plus other related costs (pharmacy services, and general practitioner [GP] consultations) might impact on their adherence to medicines.^{11–14}

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A study by Schafheutle et al.¹⁵ in the United Kingdom (UK) found that many people paying prescription charges did not take their medicines as intended, due to the cost. Common strategies included taking their medicine less frequently, not getting all the items dispensed at once, or not getting their medicine dispensed at all. A pilot study in Canada, where participants were on average 60 (± 14.3) years old, found that 15% of the study participants reported some form of non-adherence to their prescribed medicines, due to an inability to pay.¹⁶ Participants used similar strategies to those found in the UK, such as delaying or not filling a prescription, or taking a less frequent or smaller dose. Twenty-seven participants (45%) in this study reported that their physician had asked how they managed their prescription costs.

Heisler et al.,⁸ in a study in the US, found that significant declines in health status were reported more by people who had restricted their use of medication (32.1%) than by people who had not (21.2%). Furthermore, higher rates of decline in health status were found in older people in this situation (44.7%) than in younger people (29.7%). The same authors later found that middle-aged and elderly adults with cardiovascular disease who had reported cutting down on their medicines because of cost were more likely to be admitted to hospital in the following two years.¹⁰

In New Zealand, the Pharmaceutical Management Agency (PHARMAC) decides which medicines the government will fund on prescriptions and sets subsidy levels for them.¹⁷ At the time of this study, the co-payment ('prescription charge') was NZ\$3.00 for fully subsidised medicines for individuals six years of age and over. An additional charge ('part-charge'—the difference between the full medicine cost and the government subsidy, plus a pharmacy mark-up) was made for medicines the government only partly subsidised, and the full cost was charged for medicines with no government subsidy. New Zealand has a system to cap high-users' annual costs for medicines, by issuing a 'prescription subsidy card' to individuals or families who have purchased 20 subsidised prescription items in a 12-month period (from 1 February each year). Individuals or families can present this card when collecting prescription medicines and they will

receive any subsequent fully subsidised items free of charge. Community pharmacy transaction systems are not linked to each other, so this system works best for individuals or families who use one pharmacy.¹⁸ If they use several pharmacies, they need to carefully retain their receipts.

In Australia, a single person 65 years and older, with an annual tax-deductible income of A\$50,000 or less, pays a reduced co-payment charge (A\$6.00 per item, compared with a standard A\$36.90), and in the UK a person 60 years and older pays no co-payment.^{19,20} This means that older people in New Zealand, unlike those in Australia and the UK,^{19,20} pay the full co-payment for each medicine, and possibly a part-charge or the full cost for some medicines. They may also incur the costs of pharmacy services (e.g. compliance packaging), or GP services (e.g. costs for a repeat prescription, or GP consultation). To alleviate costs, there is the prescription subsidy card, and people with low incomes and high medical and prescription costs can also apply for an allowance from Work and Income New Zealand (WINZ), based on their previous year's expenditure.

Studies have found that some people in New Zealand do not fill their prescriptions because of the cost.^{7,21} A five-country survey found that people with below average incomes in New Zealand, Australia, Canada and the US (but not the UK) were more likely to have not filled a prescription due to the cost.⁷ Another study found that Māori and Pacific people were more likely than New Zealand Europeans to have deferred filling a prescription due to the cost.²² Two New Zealand studies indicated that although most older people found their medicines affordable, a few had difficulty paying for them (for example, 6% in a survey of over 300 participants in Dunedin).^{23,24} However, in these studies, questions about costs were a minor component, the participants lived in one city, were predominantly of one ethnicity, and no data on cost or income were collected.

In view of the possible costs for prescription medicines incurred in New Zealand and their potential impact on adherence to medicines, it is important to gain further insight into older people's views on these costs. This pilot study was undertaken in four major cities across New

Zealand to examine older people's views on medicines costs and related costs.

Methods

A questionnaire about the costs older people incurred when obtaining a prescription medicine was developed by the authors, with input from two local community pharmacists. It was piloted by two researchers and a member of the public over the age of 65 years, and modified in the light of their comments. Questions focused on the cost of prescription medicines, and other related costs, such as the costs of consulting a GP, requesting repeat prescriptions, and having medicines delivered (Table 1). The study was conducted in four cities in New Zealand: Auckland and Wellington (North Island), Christchurch and Dunedin (South Island). The study was approved by the Multi-region Ethics Committee (Ref. MEC/10/100/EXP).

The survey was administered in July 2011 by five final-year Bachelor of Pharmacy students, outside five pharmacies in total, in the four cities. Two students administered the survey in Wellington, and one student in each of the other three cities. Survey administration techniques were discussed in a meeting prior to administering the survey. The survey was administered on one or more weekdays, as older people were considered more likely to collect their medicines on weekdays rather than the weekends. The investigators selected pharmacies that were situated in low/middle socioeconomic areas. With the pharmacy manager's consent, potential participants were approached by one of the investigators outside a community pharmacy (inside during inclement weather) immediately after they had collected their prescription medicines. The investigators identified themselves as pharmacy students. Potential participants were asked if they had just collected prescription medicines for themselves, and to which age group they belonged. If they were 65 years or older, they were invited to participate in the study. The study objectives were explained to them and they were provided with an information sheet. People willing to participate were recruited to the study. The interviewers read the questions to the participants and wrote down their responses. Explanations were provided if requested.

WHAT GAP THIS FILLS

What we already know: Some people find medicines expensive and this may impact on their ability to take them as prescribed. Little is known of how older people in New Zealand view their medicine costs and other related costs.

What this study adds: In this survey of people aged 65 years and older in four cities in New Zealand, a majority of participants reported that the cost of their medicines and general practitioner consultations were 'reasonable'. Nevertheless, some participants reported finding these costs expensive, and half the participants thought that older people should pay less than they do for their medicines.

Table 1. Survey questionnaire topics

- Number of visits per month to the pharmacy
- Number of medicines collected on the day of the study
- Cost of prescription medicines on the day of the study
- Usual cost of prescription medicines per visit
- Perceptions of these costs
- Opinions on whether people over 65 years should pay less for their medicines
- Prescriptions ever not filled because of financial difficulties
- Payment of a part-charge for any prescription medicines and perceptions of these costs
- Prescriptions faxed to pharmacy and perceptions of pharmacy processing costs
- Medicines packed in an organiser/blister pack and perceptions of these costs
- Medicines delivered to person's home and perceptions of these costs
- GP's fee for providing prescriptions following a phone request
- GP's fee for a consultation and perceptions of these costs
- Help with costs for prescription medicines, e.g. family, social welfare (WINZ)
- Medical insurance cover
- Demographics: age group, ethnicity, sex, household income

WINZ Work and Income New Zealand

Questionnaire responses were collated and entered into Microsoft Excel and analysed using descriptive statistics. Medicine costs per month were calculated from participants' estimates of their usual medicines cost per visit to a pharmacy, and the number of visits they made each month.

Statistical tests were performed using Stata (Version 11.2, StataCorp, College Station, Texas). As data were not normally distributed, the Kruskal-Wallis test was used to compare continuous and ordinal data between cities, and the Chi-square test to compare categorical data. The Chi-square test was also used to determine any association between views that prescription medicines were

expensive or very expensive (dependent variable) and participant characteristics (independent variables). The latter were dichotomous variables for age (65–74 years vs ≥ 75 years), sex (male vs female), income ($< \text{NZ\$}30,000$ vs $\geq \text{NZ\$}30,000$ per annum), ethnicity (New Zealand European vs other ethnicities), number of medicines collected (< 5 vs ≥ 5), and cost of medicines per month ($< \text{NZ\$} 8.33$ vs $\geq \text{NZ\$} 8.33$). Statistical significance was determined as $p < 0.05$.

Results

One hundred and seven participants completed the survey. There were 27 participants in Auckland, 25 in Wellington, 30 in Christchurch, and 25 in Dunedin (Table 2). Due to inclement weather, the survey was completed mainly indoors, in a pharmacy or in a waiting area for the pharmacy and medical centre. Around half of the participants were female ($n=57$; 53.3%), and 73 (68.2%) participants were aged 65–74 years. Participants were New Zealand European ($n=77$; 72.0%), Asian ($n=9$; 8.4%), Māori ($n=7$; 6.5%), Pacific ($n=7$; 6.5%), Australian ($n=2$; 1.9%), or Other ($n=5$; 4.7%), and proportions of New Zealand Europeans differed between cities ($c2(3)=31.5$;

$p < 0.001$). Only three (11.3%) participants in Auckland and four (13.3%) in Christchurch were Māori. Eight participants were unsure of their income, but just over half of the remainder ($n=52$; 48.6%) received NZ\$30,000 per annum or more (Table 2), and income levels differed between cities ($c2(3)=38.8$; $p < 0.001$). The majority of participants in Wellington (18; 72.0%) and in Dunedin (17; 68.0%) had an income of less than NZ\$30,000 per annum.

The median number of prescription medicines received on the day of the study was five (range 1–15), the median cost was NZ\$8.00 (range NZ\$0–55.30), and the median cost per month was NZ\$8.33 (range NZ\$0–87.00; Table 3). The number and costs of medicines differed between cities ($p < 0.01$, Kruskal-Wallis test; Table 3). Participants in Christchurch and Auckland received the most medicines (median 6, range 1–15; and median 6, range 2–11; respectively), and participants in Christchurch received the most expensive medicines (median cost NZ\$19.50, range NZ\$3.00–45.00). The median part-charge was NZ\$6.25 (range NZ\$0.60–100.00) and most of the participants ($n=89$; 83.2%) found their medicine costs and part-charges were reasonable.

Table 2. Demographic characteristics of survey participants

Characteristic	All N=107	Auckland n=27	Wellington n=25	Christchurch n=30	Dunedin n=25	Chi-square test (c2(3))	p-value
Age and sex							
Male	50 (46.7%)	15 (55.6%)	11 (44.0%)	15 (50.0%)	9 (36.0%)	2.2	0.531
Female	57 (53.3%)	12 (44.4%)	14 (56.0%)	15 (50.0%)	16 (64.0%)		
65–74 years	73 (68.2%)	19 (70.4%)	13 (52.0%)	24 (80.0%)	17 (68.0%)	4.2	0.242
≥ 75 years	33 (30.8%)	8 (29.6%)	11 (44.0%)	6 (20.0%)	8 (32.0%)		
Declined to answer	1 (0.9%)	0	1 (4.0%)	0	0		
Ethnicity							
New Zealand European	77 (72.0%)	9 (33.3%)	21 (84.0%)	22 (73.3%)	25 (100%)	31.5	< 0.001
Māori	7 (6.5%)	3 (11.1%)	0	4 (13.3%)	0		
Pacific	7 (6.5%)	4 (14.8%)	0	3 (10.0%)	0		
Asian	9 (8.4%)	6 (22.2%)	3 (12.0%)	0	0		
Australian	2 (1.9%)	2 (7.4%)	0	0	0		
Other	5 (4.7%)	3 (11.1%)	1 (4.0%)	1 (3.3%)	0		
Income							
Income $< \text{NZ\$}30,000$	47 (43.9%)	7 (25.9%)	18 (72.0%)	5 (16.7%)	17 (68.0%)	38.8	< 0.001
Income $\geq \text{NZ\$}30,000$	52 (48.6%)	20 (74.1%)	2 (8.0%)	25 (83.3%)	5 (20.0%)		
Don't know	8 (7.5%)	0	5 (20%)	0	3 (12.0%)		

Table 3. Prescription medicines, part-charges, financial help, and views on costs

	All N=107	Auckland n=27	Wellington n=25	Christchurch n=30	Dunedin n=25	Chi-square test (c2(3))	p-value
Prescription medicines							
Median number (range) of prescription medicines received today	5 (1–15)	6 (2–11)	3 (1–8)	6 (1–15)	3 (2–12)		<0.001*
Prescription medicine cost							
Median cost (range) on day of study (NZ\$)	8.00 (0–55.30)	5.00 (0–23.20)	6.00 (0–29.50)	19.50 (3.00–45.00)	0 (0–55.30)		<0.001*
Median cost (range) per month (NZ\$)	8.33 (0–87.00)	12.30 (0–87.00)	5.00 (0–24.00)	9.00 (1.00–80.00)	11.00 (0–55.00)		0.007*
Cost is reasonable	89 (83.2%)	23 (85.2%)	24 (96.0%)	26 (86.7%)	16 (64.0%)		
Cost is expensive or very expensive	18 (16.8%)	4 (14.8%)	1 (4.0%)	4 (13.3%)	9 (36.0%)		
Part-charges							
Participants paying a part-charge	30 (28.0%)	9 (33.3%)	7 (28.0%)	8 (26.7%)	6 (24.0%)		
Median part-charge (range) (NZ\$)	6.25 (0.60–100.00)	6.70 (1.80–23.30)	10.00 (6.00–100.00)	6.00 (3.00–12.00)	3.25 (0.60–10.00)		
Cost is reasonable (%)	25 (83.3%)	8 (88.9%)	4 (57.1%)*	8 (100%)	5 (83.3%)		
Cost is expensive or very expensive	4 (13.3%)	1 (11.1%)	2 (28.6%)	0	1 (16.7%)		
Financial help							
Receives financial help from family or social welfare (WINZ)	30 (28.0%)	10 (37.0%)	2 (8.0%)	15 (50.0%)	3 (12.0%)	16.4	<0.001
Has medical insurance	2 (1.9%)	1 (3.7%)	0	0	1 (4.0%)		
Prescriptions not filled							
Ever not filled prescription because of cost	9 (8.4%)	3 (11.1%)	0	1 (3.3%)	5 (20.0%)		
Costs for people ≥65 years							
Agrees that people ≥65 years should pay less for prescriptions	54 (50.5%)	26 (96.3%)	12 (48.0%)	6 (20.0%)	10 (40.0%)	45.2	<0.001
Disagrees with the above	31 (29.0%)	0	7 (28.0%)	24 (80.0%)	0		
'Don't know'	22 (20.5%)	1 (3.7%)	6 (24.0%)	0	15 (60.0%)		

WINZ Work and Income New Zealand

* Kruskal-Wallis test

† One participant was unsure of the cost

Thirty participants (28.0%) received help with their medicine costs from social welfare (WINZ; n=20, 18.7%) or their family (n=10; 9.3%) and this differed between cities (c2(3)=16.4, $p<0.001$) (Table 3). Half of the participants in Christchurch (n=15; 50.0%), over a third in Auckland (n=10; 37.0%), and two (8.0%) and three (12.0%) participants, respectively, in Wellington and Dunedin received financial help with medicine costs. Only two participants in total had medical insurance. Nine participants (8.4%) had not filled

a prescription at some time because of the cost. Half of the participants (n=54; 50.5%) thought people 65 years and over should pay less for their medicines, but views differed between cities (c2(3)=45.2; $p<0.001$). Twenty-six participants (96.3%) in Auckland agreed with this viewpoint but only six (20.0%) in Christchurch.

Eighteen participants (16.8%) had medicines dispensed in compliance packs, 11 (10.3%) had them delivered to their home, and 34 (31.8%) had

Table 4. Services and charges made by pharmacies and general practices

Services and charges	All N=107	Auckland n=27	Wellington n=25	Christchurch n=30	Dunedin n=25	Chi-square test (c2(3))	P-value
Compliance packs							
Have medicines in compliance packs	18 (16.8%)	8 (29.6%)	1 (4.0%)	3 (10.0%)	6 (24.0%)		
Median pharmacy charge (NZ\$)	4.00 (0–8.00)	5.00 (0–5.00)	0	0	4 (0–8.00)		0.111*
Cost is reasonable (%)	15 (83.3%)	7 (87.5%)	0	3 (100%)	5 (83.3%)		
Cost is expensive or very expensive (%)	2 (11.1%)	1 (12.5%)	0	0	1 (16.7%)		
Medicine home delivery							
Have medicines delivered to their home	11 (10.3%)	3 (11.1%)	0	0	8 (32.0%)		
Median pharmacy charge (NZ\$)	0 (0–0)	0 (0–0)	–	–	0 (0–0)		
Cost is reasonable (%)	10 (90.9%)	3 (100%)	–	–	7 (87.5%) [†]		
Cost is expensive or very expensive	0	0	–	–	0		
Telephone requested prescription							
Have requested prescriptions by telephone	34 (31.8%)	7 (25.9%)	7 (28.0%)	8 (26.7%)	12 (48.0%)	4.0	0.263
Median general practice charge (NZ\$)	14.00 (0–25.00)	22.00 (15.00–25.00)	17.00 (9.00–17.00)	5.00 (5.00–7.50)	12.00 (0–15.00)		0.001*
Prescriptions faxed to pharmacy							
Have prescriptions faxed to pharmacy	25 (23.4%)	5 (18.5%)	3 (12.0%)	2 (6.7%)	15 (60.0%)		
Median general practice charge (NZ\$)	3.00 (0–15.00)	4.50 (0–5.00)	7.50 (0–15.00)	5.00 (5.00–5.00)	3.00 (0–5.00)		0.105*
Cost is reasonable (%)	22 (88.0%)	5 (100%)	2 (66.7%)	2 (100%)	13 (86.7%)		
Cost is expensive or very expensive (%)	3 (12.0%)	0	1 (33.3%)	0	2 (13.3%)		
GP consultation charges							
GP consultation charge NZ\$0–30.00	49 (45.8%)	4 (14.8%)	11 (44.0%)	28 (93.3%)	6 (24.0%)		<0.001 [‡]
Cost is reasonable (%)	43 (87.8%)	4 (100%)	7 (63.6%)	28 (100%)	4 (66.7%)		
Cost is expensive or very expensive (%)	6 (12.2%) (L)	0	4 (36.4%)	0	2 (33.3%)		
GP consultation charge NZ\$31.00–60.00	58 (54.2%)	23 (85.2%)	14 (56.0%)	2 (6.7%)	19 (76.0%)		<0.001 [‡]
Cost is reasonable (%)	20 (34.5%)	8 (34.7%)	4 (28.6%)	2 (100%)	6 (31.6%)		
Cost is expensive or very expensive (%)	38 (65.5%)(H)	15 (65.2%)	10 (71.4%)	0	13 (68.4%)	23.1	<0.001 [§]

GP General practitioner

* Kruskal-Wallis test

† One participant unsure of cost

‡ Fisher's exact test

§ Comparing views of participants paying higher (H) vs lower (L) consultation charges

requested a prescription by telephone at some time (Table 4). A few participants could not recall the exact costs, but over 80% thought costs were reasonable for compliance packaging (median NZ\$4.00, range 0–8.00), medicines deliveries (no cost from these particular pharmacies), and having a prescription faxed from a GP practice (NZ\$3.00, range 0–15.00). Charges for GP consultations differed between cities ($p<0.001$, Fisher's exact test), with around half the participants ($n=58$; 54.2%) paying NZ\$31.00–60.00 for a GP consultation, and the remainder paying NZ\$0–30.00. Twenty-eight participants (93.3%) from Christchurch paid the lower charge, compared with smaller proportions (14.8–44.0%) in the other cities. Of the 107 participants, 63 (58.9%) considered their GP's consultation charge was reasonable. Significantly more participants who paid a higher charge ($n=38/58$; 65.5%) than a lower charge ($n=6/49$; 12.2%) thought this expensive or very expensive ($\chi^2(3)=23.1$; $p<0.001$).

The subgroup analysis found that the participants ($n=16$; 29.1%) who paid a median monthly cost of NZ\$8.33 or above (8.33–87.00) for their medicines more commonly viewed these as expensive or very expensive ($p=0.001$, Fisher's exact test; Table 5). This was not the case for any of the other variables examined: age, sex, income, ethnicity, or number of medicines.

Discussion

Over 80% of the participants 65 years and over in this study thought the costs they incurred related

to medicines, part-charges, compliance packaging, and having a prescription faxed were reasonable. In addition, almost 60% thought their GP consultation costs were reasonable. Conversely, 17–41% of participants thought some medicine costs or related costs, such as GP consultations, were expensive or very expensive. Studies have shown that high 'out-of-pocket' costs can be a predictor of the underuse of medicines; it is possible that participants' negative views might reflect some difficulties managing costs, and might influence their adherence to medicines.²⁵

This study, not surprisingly, found that older people with higher monthly medicine costs (NZ\$8.33–87.00) were more likely to consider medicine costs expensive ($p=0.001$). However, the study did not examine whether this would affect adherence, as has been reported elsewhere, and which has led participants in other studies to report deliberately missing some doses, or not collecting all their prescription medicines.^{15,16} Nevertheless, in the Canadian pilot study, people with higher monthly medicine costs (>\$100 vs <\$20) were more likely to reduce their medicines use (odds ratio 42.5; 95% confidence interval 2.02–894.03).¹⁶ Furthermore, the present study did not examine whether the participants discussed the cost of this medicine, or the option of cheaper alternatives, with their GPs. Such discussions were reported by almost half the participants in the Canadian study,¹⁶ and have been recommended by other researchers.²⁶ Questions on both the topics above would be important to incorporate into any larger studies in New Zealand in the future.

Table 5. Participants who considered monthly medicine costs expensive or very expensive

Characteristic	Expensive or very expensive	Comparator	Expensive or very expensive	Chi-square test ($\chi^2(1)$)	p-value
65–74 years old ($n=73$)	10 (13.7%)	≥ 75 years-old ($n=33$)	8 (24.2%)	1.9	0.181
Male ($n=50$)	9 (18.0%)	Female ($n=57$)	9 (15.8%)	0.1	0.760
Annual income <NZ\$30,000 ($n=47$)	11 (23.4%)	Annual income \geq NZ\$30,000 ($n=52$)	6 (11.5%)	2.4	0.118
NZ European ($n=77$)	14 (18.2%)	All other ethnicities ($n=30$)	4 (13.3%)		0.774*
Medicines cost per month <NZ\$8.33 ($n=52$)	2 (3.8%)	Medicines cost per month \geq NZ\$8.33 ($n=55$)	16 (29.1%)		0.001*
Number of medicines collected <5 ($n=41$)	4 (9.8%)	Number of medicines collected ≥ 5 ($n=66$)	14 (21.2%)		0.184*

* Fisher's exact test

Almost 40% of the older people in this study thought GP consultation costs were expensive or very expensive. Not surprisingly, this was significantly more common in people paying a higher charge (65.6%) than a lower charge (12.2%; $p < 0.001$ for comparison). The participants in this study were not asked whether this had restricted their visits to a GP, but a recent New Zealand Health Survey suggests this might be unlikely. The survey in 2011/12 (N=12 000) found that the level of unmet need for GP services in a 12-month period due to cost was lower in older people than in younger people.³ Fewer people 65–74 years (6.5%) and 75 years or over (4.2%), compared with people 25–34 years (23.0%) and 35–44 years (18.3%), had not visited their GP when they had a medical problem, because of the cost.³

The study found that only nine participants (8.4%) had not filled a prescription because of cost, on some occasion. This included five participants from Dunedin. As the sample size was small, these findings need to be confirmed in a larger study. Some predictors of the underuse of medicines, including cost, have been identified in New Zealand, but there is limited information on underuse of medicines in older people. A seven-country study by Kemp et al. (including participants in New Zealand, Australia, Canada, Germany, Netherlands, UK and the US), in all age groups, found underuse to be a result of high out-of-pocket costs, younger age, a lower-than-average income, ethnicity, and depression.²⁵ In the same study, underuse was more commonly reported among indigenous people from New Zealand, Australia and Canada.²⁵ This latter finding was consistent with that of a study in New Zealand by Jattrana et al., which reported that Māori and Pacific people were more likely than New Zealand Europeans to have deferred filling a prescription in the past 12 months due to the cost.²² Nevertheless, it appears that cost may have a lesser impact on older people with respect to unfilled prescriptions, as the New Zealand Health Survey found that fewer older people (4.1% of people 65–74 years) than younger people (10.7% of people 25–34 years), Māori (18.3%), or Pacific people (13.3%) had declined to fill a prescription in the past 12 months due to cost.³

The participants in this study found medicines generally affordable. This was consistent with

findings in other New Zealand studies and with findings in the New Zealand Health Survey.^{3,23,24} Recently, however, pharmacy co-payments have risen from NZ\$3.00 per item to NZ\$5.00 in New Zealand (January 2013), and this increase may be impacting on some older people, and others. The New Zealand government argues that this rise in co-payment will have little impact on individuals as the charge is still low compared with other countries.²⁷ The impact on older people is hard to predict, and is likely to depend on their income and whether their medicines are fully funded. Although older people will need to pay the increased co-payment, help from the Prescription Subsidy Card, their families, and a possible supplementary allowance from WINZ may reduce the impact of the increase. Nevertheless, for some individuals or couples, finding NZ\$100.00 (rather than NZ\$60.00 at present) to meet this cost for their first 20 items in the period before the cost is ‘capped’ may prove difficult.

The strengths of the study were that data on prescription medicine costs and other related costs were captured from several locations in New Zealand and from a range of participants by age, income, and ethnicity. In addition, the questionnaire was investigator administered, so there was an opportunity for clarifying any questions. Survey administration techniques were discussed at a research team meeting prior to the survey being administered by the investigators (students); however, there may have been slight differences in the way the survey was administered. Given this was a pilot study with a small sample size, making meaningful comparisons between groups proved difficult, and the findings may not be generalisable throughout New Zealand. The median monthly medicines cost was calculated on the basis of participants’ estimates, so may be subject to recall bias. Collection of costs from pharmacy data, with permission, would have been more accurate. There was also a possibility of selection bias, in that only older people who had visited one of five pharmacies (two in Wellington, one in the other cities) were approached. In addition, a small number of potential participants did not agree to participate, and others who appeared to be in a hurry were not approached. The exact numbers in these categories were not recorded. As with most surveys, there was a possibility of

participants giving a socially desirable response, particularly given that they knew the investigators were pharmacy students. Also, participants who completed a questionnaire inside a pharmacy or in a waiting area for a pharmacy and medical centre may have been disinclined to criticise charges or services in those settings.

In summary, most of the participants in this pilot study—65 years and older from four cities in New Zealand—found their prescription medicine costs and related costs affordable. Nonetheless, 17–41% of individuals found these costs expensive, and half of the participants thought older people should pay less for their medicines. Furthermore, nearly two-thirds (65.5%) of the participants paying a higher GP consultation charge (NZ\$31.00–60.00) considered this cost expensive.

This study provides preliminary insight into older people's perceptions about medicine costs and related costs in New Zealand. A larger in-depth study is needed to explore these issues to determine the sections of the older population that are finding these costs expensive, whether this is impacting on their adherence to medicines, and whether there are other determinants of underuse of prescription medicines in older people. This could assist in the development of appropriate practical or political solutions to optimise adherence to medicines, as needed.

References

- Fortin M, Bravo G, Hudon C, Vanasse A, Lapointe L. Prevalence of multimorbidity among adults seen in family practice. *Ann Fam Med*. 2005;3(3):223–8.
- Wolff JL, Starfield B, Anderson G. Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Arch Int Med*. 2002;162(20):2269–76.
- Ministry of Health, New Zealand. The Health of New Zealand Adults 2011/12: Key findings of the New Zealand Health Survey. Wellington: Ministry of Health; 2012.
- Briesacher BA, Gurwitz JH, Soumerai SB. Patients at-risk for cost-related medication nonadherence: a review of the literature. *J Gen Intern Med*. 2007;22(6):864–71.
- Tamblyn R, Laprise R, Hanley JA, Abrahamowicz M, Scott S, Mayo N, et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. *JAMA*. 2001;285(4):421–9.
- Piette JD, Heisler M, Horne R, Caleb Alexander G. A conceptually based approach to understanding chronically ill patients' responses to medication cost pressures. *Soc Sci Med*. 2006;62(4):846–57.
- Schoen C, Davis K, DesRoches C, Donelan K, Blendon R. Health insurance markets and income inequality: findings from an international health policy survey. *Health Policy*. 2000;51(2):67–85.
- Heisler M, Langa KM, Eby EL, Fendrick AM, Kabeto MU, Piette JD. The health effects of restricting prescription medication use because of cost. *Med Care*. 2004;42(7):626–34.
- Kennedy J, Morgan S. Cost-related prescription nonadherence in the United States and Canada: a system-level comparison using the 2007 International Health Policy Survey in seven countries. *Clin Ther*. 2009;31(1):213–9.
- Heisler M, Choi H, Rosen AB, Vijan S, Kabeto M, Langa KM, et al. Hospitalizations and deaths among adults with cardiovascular disease who underuse medications because of cost: a longitudinal analysis. *Med Care*. 2010;48(2):87–94.
- Statistics New Zealand. Income for all people by labour force status, sex, and age groups. 2013. [cited 2014 March 4]. Available from: http://www.stats.govt.nz/tools_and_services/nzdotstat/income-tables.aspx
- Lansbury G. Chronic pain management: a qualitative study of elderly people's preferred coping strategies and barriers to management. *Disabil Rehabil*. 2000;22(1–2):2–14.
- Essue B, Kelly P, Roberts M, Leeder S, Jan S. We can't afford my chronic illness! The out-of-pocket burden associated with managing chronic obstructive pulmonary disease in western Sydney, Australia. *J Health Serv Res Policy*. 2011;16(4):226–31.
- Lostao L, Regidor E, Geyer S, Aiach P. Patient cost sharing and social inequalities in access to health care in three western European countries. *Soc Sci Med*. 2007;65(2):367–76.
- Schafheutle EI, Hassell K, Noyce PR. Coping with prescription charges in the UK. *Int J Pharm Prac*. 2004;12(4):239–46.
- Zheng B, Poulou A, Fulford M, Holbrook A. A pilot study on cost-related medication nonadherence in Ontario. *J Popul Ther Clin Pharmacol*. 2012;19(2):e239–47.
- Pharmaceutical Management Agency of New Zealand (PHARMAC). Introduction to PHARMAC [pamphlet]. Wellington: Pharmaceutical Management Agency of New Zealand; 2011.
- Stephenson K. Free prescription medicines scheme failing most vulnerable. *Pharmacy Today*. November, 2012. [cited 2014 March 1]. Available from: www.pharmacytoday.co.nz/news/2012/november-2012/13/free-prescription-medicines-scheme-failing-most-vulnerable.aspx
- Australian Government Department of Human Services. Commonwealth Seniors Health Card. Eligibility basics. 2014. [cited 2014 March 1]. Available from: <http://www.humanservices.gov.au/customer/services/centrelink/commonwealth-seniors-health-card>
- National Health Service (NHS) UK. Prescription costs: make savings. 2012 [cited 2014 March 1]. Available from: <http://www.nhs.uk/Planners/Yourhealth/Pages/Prescriptioncosts.aspx>
- Willmot EJ, Lawton BA, Rose SB, Brown S. Exploring knowledge of prescription charges: a cross-sectional survey of pharmacists and the community. *N Z Med J*. 2009;122(1301):19–24.
- Jatrana S, Crampton P, Norris P. Ethnic differences in access to prescription medication because of cost in New Zealand. *J Epidemiol Community Health*. 2011;65(5):454–60.
- Tordoff JM, Bagge ML, Gray AR, Campbell AJ, Norris PT. Medicine-taking practices in community-dwelling people aged ≥75 years in New Zealand. *Age Ageing*. 2010;39(5):574–80.
- Tordoff J, Simonsen K, Thomson M, Norris P. 'It's just routine.' A qualitative study of medicine-taking amongst older people in New Zealand. *Pharm World Sci*. 2010;32(4):154–61.
- Kemp A, Roughead E, Preen D, Glover J, Semmens J. Determinants of self-reported medicine underuse due to cost: a comparison of seven countries. *J Health Serv Res Policy*. 2010;15(2):106–14.
- Tseng CW, Dudley RA, Brook RH, Keeler E, Steers WN, Alexander GC, et al. Elderly patients' preferences and experiences with providers in managing their drug costs. *J Am Geriatr Soc*. 2007;55(12):1974–80.
- Minister of Health, New Zealand Government. Budget 2012: Prescription Charges Help Fund Health. Press Release. 14 May 2012. [cited 2014 March 1]. Available from: <http://beehive.govt.nz/release/budget-2012-prescription-charges-help-fund-health>

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COMPETING INTERESTS

None declared.