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# Prescription medication hoarding, borrowing and sharing among elderly Illawarra residents

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## Publication Details

Mullan, J., Ellis, J., Worsley, A. & Yeo, W. (2010). Prescription medication hoarding, borrowing and sharing among elderly Illawarra residents. *National Medicines Symposium 2010* (pp. 251-251). National Prescribing Service LTD.

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# Prescription medication hoarding, borrowing and sharing among elderly Illawarra residents

## **Abstract**

**Objective:** To examine prescription medication hoarding and borrowing or sharing (PMHBS) behaviours in aged people, particularly which medications are subject to these behaviours and the circumstances that enable these behaviours. **Method:** A mixed methods triangulation design, using consecutive qualitative (focus groups) and quantitative (survey) methodologies in a convenience sample of people aged over 65, living independently in the Illawarra region (NSW). **Results:** Focus group participants (n=28) acknowledged PMHBS behaviours were widespread; however, very few survey respondents (n=226) admitted to engaging in these behaviours. **Main findings in the study were enablers for these behaviours:** the prescription medication is considered the same as that prescribed previously; and self medicating for pain relief. **Conclusions:** The prevalence of PMHBS behaviours in this study was low, although it was acknowledged such behaviours occurred in the wider community. Sharing strong pain medication and the same prescription medication appeared to be acceptable in this population.

## **Keywords**

among, illawarra, residents, borrowing, prescription, hoarding, medication, sharing, elderly

## **Disciplines**

Medicine and Health Sciences

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# Australasian Journal on Ageing

## Prescription Medication Hoarding and Borrowing or Sharing Behaviours in Aged Residents in the Illawarra (NSW), Australia

Journal:	<i>Australasian Journal on Ageing</i>
Manuscript ID:	AAJA-2010-038.R1
Manuscript Type:	Research
Keywords:	Aged, Health Behaviour, Medication Adherence, Self Medication

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*Results:* Focus group participants (n=28) acknowledged PMHBS behaviours were widespread; however, very few survey respondents (n=226) admitted to engaging in these behaviours. Main findings in the study were enablers for these behaviours: the prescription medication is considered the same as that prescribed previously; and self medicating for pain relief.

*Conclusions:* The prevalence of PMHBS behaviours in this study was low, although it was acknowledged such behaviours occurred in the wider community. Sharing strong pain medication and the same prescription medication appeared to be acceptable in this population.

**KEY WORDS (MeSH Headings):** Aged, Health Behaviour, Medication Adherence, Self Medication

## **Introduction**

Prescription medication hoarding, borrowing and sharing (PMHBS) is a significant factor in aged Australians' medication management behaviours (1-3). Prescription medication "hoarding" refers to the collection of three or more of the one kind of prescription medication that the patient cannot be expected to consume within a reasonable timeframe (1), usually 90 days' worth of treatment (4). This behaviour results in the collection of a range of unwanted or no longer needed prescription medications in the home (3). It is recognised by the authors that the term "hoarding" can be viewed as negative, judgemental and a derogatory term but would like to emphasise that many older people could be inadvertently hoarding medications because they do not wish to be wasteful; however, the risks of accidental adverse drug events (ADEs) from the consumption of "hoarded" prescription medication, particularly in the elderly, makes this behaviour of concern to health professionals (3). The evidence on the prevalence of this behaviour in Australian aged populations varies greatly. For example, an in-home assessment of aged patients (over 65) found that 30% of study participants hoarded three or more prescription medications (3), while a review of 1000 case studies of aged adults (median age 75 years) undergoing the Home Medication Review process, found that only 0.9% of participants hoarded medications (2).

"Borrowing" a prescription medication means that the patient takes a medication that has been prescribed for someone else; "sharing" (or "loaning") indicates that the patient gives a medication prescribed for themselves to someone else (5). A review of Australian studies of medication management by the aged (3) showed that 13-20% of

aged Australians shared prescription medications, increasing the potential risk of adverse drug effects and avoiding counselling from a prescriber or dispenser (5).

However, there are few studies that focus specifically on borrowing or sharing behaviours in the aged (1, 3), with only two recent studies focusing on younger people taking part in such behaviours (5, 6).

The aim of the current study was to examine prescription medication hoarding and borrowing or sharing amongst people over the age of 65 years, living independently in the Illawarra Region, NSW. The study sought to (a) identify attitudes towards PMHBS behaviours and the prevalence of these behaviours; (b) to determine which types of prescription medications are more likely to be implicated in PMHBS behaviours; and (c) to determine if there are circumstances that facilitate PMHBS behaviours.

## **Method**

The study utilised a mixed methods triangulation design (7), which requires the collection and comparison of qualitative and quantitative data separately, culminating in the combination of the data streams in the final analysis (8). The study was conducted in two consecutive phases, carried out during June-August, 2009: Phase One – qualitative method (focus group discussion); Phase Two – quantitative method (survey questionnaire). The findings from the focus groups (Phase One) were evaluated, with some of the major findings used to inform the development of the survey instrument for Phase Two. The survey results were then evaluated separately and then in the context of the focus group results, to elicit a deeper understanding of what the results meant in relation to the study objectives.

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7 The protocols for conducting the focus groups and survey in this study were approved  
8  
9 by the University of Wollongong's Health and Medical Human Research Ethics  
10  
11 Committee (Reference No HE09/083).  
12  
13

## 16 **1. Focus Groups (Phase One)**

### 18 *Participants*

19  
20 Four focus groups were conducted over a two week period in June 2009, attended by a  
21  
22 total of 28 participants. Three main groups were approached – two community  
23  
24 organisations catering to the elderly (one each in the north and south of the Illawarra  
25  
26 region); and patient volunteers at the University's Graduate School of Medicine. One  
27  
28 focus group was dominated by male participants (6 males to 1 female). However, the  
29  
30 total number of males ( $n=13$ ) and females ( $n=15$ ) participating in the first phase of this  
31  
32 study was almost even. While no demographic information (i.e. age) was collected  
33  
34 from focus group participants, the primary selection criterion for the focus groups was a  
35  
36 minimum age of 65 years.  
37  
38  
39  
40  
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42  
43

### 44 *Administration*

45  
46 Four scenarios based on Goldsworthy, Schwartz & Mayhorn's (5) study of prescription  
47  
48 medication borrowing and sharing in the general population were presented to stimulate  
49  
50 discussion and elicit focus group participants' attitudes about and experiences with  
51  
52 PMHBS behaviours. These scenarios described a specific situation (e.g. brother and  
53  
54 sister with same health problem), linked with a particular medication (e.g. antibiotics).  
55  
56 Participants were asked to explore the acceptability or otherwise of the scenario being  
57  
58  
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60

1  
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3  
4 presented. Participants were also encouraged to discuss how their opinions about  
5  
6 borrowing or sharing would change if another medication (e.g. pain medication) was  
7  
8 involved.  
9

## 16 **2. Survey Questionnaire (Phase Two)**

### 18 *Participants and Sampling*

20 A convenience sample of independent living residents in the Illawarra region, aged over  
21  
22 65 years, was targeted. Residents in the north and south of the region were recruited  
23  
24 through local shopping centres, as well as members of the University of the Third Age  
25  
26 (U3A) groups. Independent Living Unit residents of an Illawarra-based retirement  
27  
28 organisation and participants undergoing a Home Medicines Review (HMR) by  
29  
30 pharmacists throughout the region were also invited to participate in the survey. Table  
31  
32 1 shows the number of participants in Phase Two of the study and the response rate  
33  
34 from each recruitment source. The desired sample size for statistical significance was  
35  
36 300 (Cramer's statistic value = .20, power = .95,  $p=0.05$ ).  
37  
38  
39  
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42  
43  
44

45 Almost half (46%,  $n=104$ ) of the respondents were in the 65-74 age bracket, 39%  
46  
47 ( $n=89$ ) were in the 75-84 age bracket, and only 9% ( $n=20$ ) were aged over 85 years. A  
48  
49 small number of respondents (6%,  $n=13$ ) did not answer the question about age. The  
50  
51 majority of respondents were female (65%,  $n=147$ ) and around half (55%,  $n=125$ ) had  
52  
53 completed up to higher school or leaving certificate (Year 10) or equivalent education  
54  
55 level. Most respondents (73%,  $n=165$ ) reported being treated for two or more chronic  
56  
57 conditions.  
58  
59  
60



*Prescription Medication Hoarding and Borrowing/Sharing**Survey Instrument*

The self-completed survey instrument consisted of 43 questions. Issues identified in the focus group discussions relating to medication management behaviours, how excess medications were disposed of and the actual hoarding, borrowing or sharing of prescription medications guided the inclusion of questions targeting those behaviours in the survey instrument. In addition, the question matrix used in previous research into PMHBS behaviour among younger populations (5, 6), was adapted for inclusion in the current study survey instrument to elicit information about which prescription medications respondents thought were safe to borrow or share, and whether they agreed or disagreed with borrowing or sharing prescription medications in specific situations. The Medication-Taking-Measures Questionnaire (9) was included to elicit information about the level of medication adherence and finally questions about the number of diagnosed medical conditions (comorbidity), the number of prescribed medications (polypharmacy), and demographic data (gender, age, level of education) were included in the survey instrument.

**Results****1. Focus Groups**

Digital recordings of the focus group discussions were transcribed and a “framework analysis” (Richie et al. 2003, cited in (10)) approach was used to analyse the discussions. Broad themes and concepts based on the data were generated and then arranged hierarchically (10). The study objectives (themes) were placed at the top of

*Prescription Medication Hoarding and Borrowing/Sharing*

1  
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3  
4 the hierarchy, with relevant data from the discussions (concepts) placed under each  
5  
6 objective, allowing exploration of linkages between the study objectives and data.  
7  
8

9  
10  
11 Participants referred to hoarding behaviour by aged relatives and the common  
12  
13 expression of this behaviour was facilitated by the expectation of receiving medication  
14  
15 prescriptions at each medical consultation:  
16  
17

18  
19  
20  
21 *[They] just keep taking something, they went to some other doctor, they*  
22  
23 *prescribed something else, they kept taking [prescription medicines]* (Participant  
24  
25 2, Group 4)  
26  
27

28  
29  
30 Some focus group participants seemed unclear as to the appropriate disposal of excess  
31  
32 or out of date medications, with some reports of patients hanging on to prescription  
33  
34 medications past the expiration date, as evidenced by the following:  
35  
36

37  
38  
39  
40 *“One of the biggest problems ... is that a lot of people take old medication*  
41  
42 *because they haven't had that illness for a while”* (Participant 4, Group 1)  
43  
44

45  
46  
47 *“If they're old and funny, drop 'em down the dunny”* (Participant 3, Group 3)  
48  
49

50  
51  
52 Even though the participants strongly disapproved of prescription medication borrowing  
53  
54 or sharing behaviours, they agreed that this behaviour was commonplace. Participants  
55  
56 did, however, discuss situations where borrowing or sharing behaviour might be  
57  
58 acceptable and included family members trying each other's medication; wanting to try  
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*Prescription Medication Hoarding and Borrowing/Sharing*

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4 a medication before getting a prescription from the medical practitioner; and forgetting  
5  
6 to get a prescription filled. There was also agreement that in certain circumstances  
7  
8 people might borrow or share prescription medications which were exactly the same as  
9  
10 their own. One situation that was clearly supported by focus group participants was the  
11  
12 borrowing or sharing of strong pain medication in an emergency situation:  
13  
14

15  
16  
17 *What about pain medication? We've got a scenario here where somebody can't*  
18  
19 *get to the doctor or the chemist because it's late (Facilitator (JE))*  
20  
21

22 *There'd be more prevalence of that I would imagine (Participant 1, Group 1)*  
23  
24  
25

26  
27 Knowledge about medications amongst focus group participants was apparent, with  
28  
29 some participants being aware of the differences in strength and brand names (including  
30  
31 generic brands) in the same prescription medication formulation. Interactions between  
32  
33 medications were also given as a reason not to borrow or share other people's  
34  
35 prescription medications:  
36  
37

38  
39  
40  
41 *I know how important it is, because if you've got a nasty cold and you want*  
42  
43 *some cold and flu tablets, they ask if you're on blood pressure tablets, they have*  
44  
45 *to give you a certain sort (Participant 4, Group 4)*  
46  
47  
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50

## 51 52 **2. Survey Questionnaire**

53  
54 Of the 354 distributed surveys, 231 (65%) were returned. Five surveys were removed  
55  
56 because no data was entered or respondents were from outside the Illawarra Region.  
57  
58 The final number of surveys analysed, therefore, was 226. While this is slightly less  
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*Prescription Medication Hoarding and Borrowing/Sharing*

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4 than the desired number of 300 surveys, the response rate was high for this type of  
5  
6 study. However, no statistically significant relationships were found between variables  
7  
8 and are therefore are not reported.  
9

10  
11  
12  
13  
14 Almost all respondents (97%,  $n=212$ ) indicated that they did not hoard (keep more than  
15  
16 three packets of the same prescription medication). However, 13% ( $n=27$ ) indicated  
17  
18 that they would keep leftover prescription medications in case they needed them later.  
19

20  
21  
22  
23 Only a small number of respondents admitted to borrowing (5%,  $n=10$ ) or sharing (6%,  
24  
25  $n=12$ ) prescription medications. When asked about the hypothetical acceptability of  
26  
27 borrowing or sharing certain prescription medications, 70% ( $n=158$ ) of respondents  
28  
29 agreed that no prescription medication was acceptable to borrow or share (Table 2).  
30  
31 However, 14% ( $n=32$ ) of respondents agreed that borrowing or sharing strong pain  
32  
33 medications was acceptable. No other prescription medication received this level of  
34  
35 support, with only nine percent ( $n=20$ ) of respondents agreeing that borrowing or  
36  
37 sharing of arthritis or joint inflammation medications was acceptable. Furthermore, very  
38  
39 few respondents agreed that borrowing or sharing medications prescribed for the  
40  
41 treatment of cardiovascular disease, diabetes, affective disorders, or antibiotics was  
42  
43 acceptable (Table 2).  
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51  
52 When it came to circumstances in which borrowing or sharing might be acceptable,  
53  
54 28% ( $n=63$ ) of respondents agreed that borrowing and 23% ( $n=53$ ) agreed that sharing  
55  
56 prescription medications would be acceptable if the other person had exactly the same  
57  
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59  
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*Prescription Medication Hoarding and Borrowing/Sharing*

prescription medication. Other circumstances which were less likely to elicit borrowing or sharing of prescription medications included;

- if they had run out or forgotten their own prescription medication (13% ( $n=30$ ) agreed with borrowing or 13% ( $n=30$ ) agreed with sharing);
- if the other person was in a lot of pain (11% ( $n=24$ ) borrowing; 13% ( $n=30$ ) sharing);
- couldn't afford the medication (3% ( $n=6$ ) borrowing; 14% ( $n=32$ ) sharing); or
- couldn't get to the doctor or chemist (13% ( $n=29$ ) borrowing; 11% ( $n=25$ ) sharing)

**Discussion**

The study suggests that there may be a difference between actual prescription medication hoarding and borrowing or sharing (PMHBS) behaviours and the perception of the prevalence of these behaviours. This is evident in the low numbers of survey respondents admitting to engaging in these behaviours and the assertion by focus group participants that PMHBS behaviours are widespread in the community. This concurs with the conflicting evidence in the existing research literature, as discussed below.

**Prescription Medication Hoarding Behaviours**

Some focus group participants and survey respondents were confused about how to correctly dispose of unwanted medications, and a small number of survey respondents (13%,  $n=27$ ) indicated that they kept prescription medications in case they needed them later. However, very few study participants admitted to hoarding, which contradicted a

*Prescription Medication Hoarding and Borrowing/Sharing*

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4 previous finding of higher levels of hoarding behaviour in the aged (11). One  
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6 explanation for the current finding of low levels of reported hoarding may be that many  
7  
8 study participants suffer chronic co-morbid conditions and as such are frequently  
9  
10 prescribed a number of different medications, an issue linked to adverse drug events  
11  
12 (ADEs) in the elderly (3). Changes to medication regimes can occur from time to time,  
13  
14 leading to the accumulation of unwanted medications. These accumulated medications  
15  
16 may have been forgotten, resulting in under-reporting of hoarding behaviour in this  
17  
18 study. Relatedly, the confusion about the appropriate disposal of prescription  
19  
20 medications may also contribute to the low levels of reported hoarding. The assumption  
21  
22 here is that, if the patient doesn't know how to dispose of expired or unwanted  
23  
24 prescription medication, there is an inadvertent "hoarding" of these medications.  
25  
26 Because the hoarding is accidental in this case, the participants may not consider  
27  
28 themselves hoarders in the strict sense of the term.  
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**Prescription Medication Borrowing or Sharing Behaviours**

37  
38 Although both focus group participants and survey respondents strongly disapproved of  
39  
40 prescription medication borrowing or sharing, results from both phases of the current  
41  
42 study suggest there are circumstances which may enable these behaviours, confirming  
43  
44 findings reported in other studies into this behaviour in the general population (5, 6).  
45  
46  
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49

50 Both focus group and survey participants expressed a willingness to borrow or share  
51  
52 strong pain medication, particularly in situations where people might have difficulty  
53  
54 accessing medical assistance. No other prescription medication that is usually  
55  
56 prescribed for the aged received the same level of support for borrowing or sharing in  
57  
58 the current study. This confirms previous findings of support for borrowing or sharing  
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*Prescription Medication Hoarding and Borrowing/Sharing*

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4 of strong pain medications (6). It has been shown that people suffering strong pain in a  
5  
6 medical emergency are more likely to self-medicate and were less likely to think about  
7  
8 the consequences of their actions as a result (12), therefore delaying seeking medical  
9  
10 advice, with resultant poorer outcomes.  
11  
12

13  
14  
15  
16 Study participants also strongly expressed an endorsement for borrowing or sharing  
17  
18 prescription medications if they felt the medication was exactly the same as had been  
19  
20 previously prescribed. Potentially, recipients may not understand the complete nature  
21  
22 of the medication from a reading of the label. The active agent may be the same in both  
23  
24 medications, but there may be a difference in the dosage and/or strength, possibly  
25  
26 resulting in an ADE if consumed incorrectly. As the aged are over-represented in ADE  
27  
28 statistics (3), this is of concern.  
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33

**Limitations**

34  
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36  
37 Several limitations apply to the present study. Firstly, the dynamics of the focus group  
38  
39 may have influenced the discussion, preventing some participants from saying anything  
40  
41 if they felt it was counter to the prevailing opinion. Similarly, administration of the  
42  
43 survey to a convenience sample, where respondents self-selected their participation in a  
44  
45 study into prescription medication, may have over-represented people with a level of  
46  
47 understanding of the variables being measured (although this level of understanding was  
48  
49 not directly measured) and a possible associated social desirability bias, therefore  
50  
51 underreporting PMHBS behaviours. Finally, the exclusion of people who could not  
52  
53 read or speak English may have reduced the generalisability of the study findings.  
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## Conclusion

This study is among the first to exclusively examine PMHBS behaviours in community-dwelling aged people and highlights two main factors which may enable these behaviours in this population. The findings in studies of younger peoples' PMHBS behaviours may not necessarily be generalisable to aged people who live in situations such as aged care facilities, independent accommodation, or in areas with little access to medical practitioners or pharmacists is difficult. More research into the prevalence and mechanisms of these behaviours in these populations is required to understand and therefore address this issue.

## KEY POINTS:

- The reported prevalence of prescription medication hoarding and borrowing or sharing in this study was much lower than reported in some research literature, and the levels of these behaviours perceived by research participants
- Borrowing or sharing strong pain medication to manage acute pain was perceived to be acceptable
- The borrowing or sharing of prescription medication individuals believed was exactly the same also was perceived to be acceptable



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**Table 1 – Survey distribution and response rates**

<b>Distribution Point</b>	<b>No. surveys distributed</b>	<b>No. surveys returned</b>	<b>Response Rate</b>
Shopping Centre (North Illawarra)	50	36	72%
Shopping Centre (South Illawarra)	99	47	48%
U3A† (North Illawarra)	43	41	95%
U3A† (South Illawarra)	51	36	71%
Independent Living Unit Residents	44	35	80%
Participants undergoing an HMR‡ by Pharmacists	67	36	54%
<b>Total</b>	<b>354</b>	<b>231</b>	<b>65%</b>

† University of the Third Age

‡ Home Medication Review

**Table 2 – Prescription Medications Survey Respondents believe are Safe to Borrow/Share**

Type of Medication	Number of Respondents <sup>†</sup>	%
Blood Pressure Medications	12	5%
Heart Disease Medications	8	4%
Arthritis/Joint Inflammation Medications	20	9%
Strong Pain Medications	32	14%
Diabetes Medications	5	2%
Depression/Anxiety Medications	5	2%
Antibiotics	3	1%
Other Medications <sup>‡</sup>	4	2%
No Prescription Medications	158	70%

<sup>†</sup> More than one response was allowed

<sup>‡</sup> "Other" responses were an non-steroidal anti-inflammatory drug, asthma prevention, high cholesterol, stomach reflux and Panamax (500mg Paracetamol)