



Therese Kairuz
Lynne Bye

Use of prescription medicines among older people

An exploratory pilot study among senior citizens living
in the community

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Contents

Chapter 1: Introduction

- 1.1 Background information
- 1.2 Poly-pharmacy and older people
- 1.3 Compliance, adherence and concordance
- 1.4 Barriers in the medicines use process
- 1.5 Aim and objectives

Chapter 2: Methodology

- 2.1 Introduction
- 2.2 Sample selection
- 2.3 Data collection
- 2.4 Data analysis

Chapter 3: Results

- 3.1 Introduction
- 3.2 Theme One: Medication issues
- 3.3 Theme Two: The role of the pharmacists
- 3.4 Theme Three: Factors affecting participant compliance

Chapter 4: Discussion

- 4.1 Introduction
- 4.2 Prescribed medicines
- 4.3 Issues identified
- 4.4 Limitations of the study
- 4.5 Areas for further research

Chapter 5: Conclusion

References

Appendices

- Appendix A: Pharmacist consent form
- Appendix B: Pharmacist information sheet
- Appendix C: Participant consent forms (stage 1 and stage 2)
- Appendix D: Participant information sheets (stage 1 and stage 2)
- Appendix E: Observation tool
- Appendix F: Interview tool
- Appendix G: Results summary sheet
- Appendix H: Full description of the categories used in data analysis

List of tables

- Table 3.1: Participant characteristics
- Table 3.2: Categories identified during data analysis
- Table 3.3: Prescribed medicines and frequency of medication issues
- Table 3.4: Frequency of medication issues
- Table 3.5: Counselling times at collection of dispensed medicines

List of figures

- Figure 3.1: Percentage frequency of medication issues
- Figure 3.2: Locations where medicines were stored in the home
- Figure 3.3: Types of memory aids used by participants

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FOREWORD

The findings of this study, conducted in 2004, laid the foundation for subsequent research about the use of medicines among older people within the Auckland region of New Zealand. This manuscript includes references relevant at the time of the study while recent population statistics, government initiatives and developments are summarised in this foreword, providing an updated introduction to the findings from the 2004 pilot study.

Tools developed and used in this study were further refined and adapted and subsequently used in a medicines management service piloted by HealthWest Primary Health Organisation in Auckland New Zealand study. These studies informed the business case for funding of a new Medicine Management Service (Medicine Use Review and Adherence Support Service) in the Waitemata District in New Zealand.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND INFORMATION

People aged over 65 years comprised 12% of the New Zealand population and used approximately 48% of prescription medicines dispensed annually (MoH, 2003). The proportion of older people in this country is anticipated to grow progressively to about 25% in the next 50 years (MoH, 2002). In the Auckland region alone, the population of people over 65 increased by 11,691 in the 10 year period from 1991 to 2001 (Statistics NZ, 2002). Life expectancy of people at age 65 increased by approximately two-and-a-half years for both males and females during the 1980's and 1990's (Statistics NZ, 1999) and at the start of the century the life expectancy of New Zealanders was 75.7 years for males and 80.8 years for females. The increased life expectancy results in a skewed population of older people who are using a large proportion of the healthcare budget. As age increases so does the proportion of people with disabilities and more than half the people aged over 65 years reported having a disability (MoH, 2003). The most frequently reported type of disability was physical (66%), which was defined as having some restriction of movement or loss of agility and included loss of mobility, or difficulty carrying or grasping objects, followed by sensory disability (40%) such as loss of sight or hearing.

The number of general practice (GP) visits per year increases as people age and men and women aged 65-74 years typically visited a GP six to seven times a year and people over 85 reported visiting approximately nine times a year (MoH, 2001). Of the 44 million prescription items dispensed in New Zealand during a single year from 2002 to 2003, on average people over 65 of age each received approximately 45 items each year, compared to the average of six items per year received by patients in the 25-44 year age group. (MoH, 2003). Patients over 65 years of age have been reported to take two to six prescribed medicines regularly as well as one to three non-prescribed medicines (Stewart et al., 1994). The cost per capita of medicines (also referred to as 'pharmaceuticals') increases as people age. For example in 2000-2001, the average cost of medicines for females aged 45-64 was \$200 per patient per year while the

average cost for females aged 65-74 was \$423 and for those over 85 the average cost increased to \$642 (MoH, 2001). A similar pattern of increasing costs occurred for males.

The Household and Residential Facility Disability Survey (MoH, 2001) reported that 74% of people aged 65-74 years were living at home without assistance while 72% of people over 85 were living at home but required higher levels of assistance.

Statistics indicate that over the next 50 years health expenditure for older people will need to increase to maintain the current standard of care (MoH, 2001). The ageing population combined with higher health expenditure makes people over 65 years a group for which health service delivery must be well managed. This pilot study explores the issues associated with the use of prescription medicines by patients over the age of 65 years in the city of Auckland, New Zealand. The indigenous Maori older people include those who are 55 years old or older while non-Maori are taken to be those who are 65 years old or older; this is due to the different life expectancies between Maori and non-Maori people.

1.2 POLY-PHARMACY AND OLDER PEOPLE

Poly-pharmacy includes the concurrent use of multiple prescription and over the counter (OTC) medicines (Monane, 1997), prescribing more medicines than are appropriate for a patient, a medication regime including one or more un-necessary medicines, or the empiric use of five or more medicines (Williams, 2002). Older people are at risk of polypharmacy (Williams, 2002; Brummel-Smith, 1998) and compliance decreases as the number of daily doses increases (Claesson, 1999). The potential for adverse events and medicine interactions also rises with increasing age and nearly 75% of older patients with poor compliance experience suboptimal health.

Factors that contribute to poly-pharmacy include:

1. Consulting numerous practitioners including medical specialists, general practitioners and complementary medicine practitioners;
2. Self-medicating with OTC and complementary medicines and herbal supplements, whether these are purchased from pharmacies, health shops, supermarkets, and the internet, or obtained from friends and family members;

3. The number of chronic illnesses (Williams, 2002);
4. Inappropriate prescribing, which includes
 - o Prescribing of additional medicines for the same complaint without further investigation about the cause of the problem or symptom resolution;
 - o The 'prescribing cascade', when additional medicines are added to treat symptoms which are the result of current treatment (McElroy, 2002);
 - o 'Therapeutic momentum' which occurs when a patient continues to take a redundant medicine for months or even years because ongoing need for the medicine has not been assessed. Repeat prescriptions, for example, are often generated through the prescriber's computer software programme and the patient receives the medicine regardless of need resulting in 'therapeutic momentum' (Zermansky et al., 2002).

The issues associated with poly-pharmacy are compounded by the storage of large amounts of medicines in the home. Suitable storage space and conditions, duration of storage, and correct identification of medicines are factors that are complicated by the dispensing of large quantities of medicines. 'Stat dispensing' is a term used by New Zealand pharmacists and refers to the dispensing of medicines in quantities sufficient for treatment for a period of 90 days. This is a government funding policy requirement for patients to be eligible to receive subsidised medicines. After dispensing a subsidised prescribed medicine, the community pharmacy is reimbursed through a Government agency while the patient pays a defined contribution in cash (Pharmac Schedule, 2004). The re-introduction of 'stat dispensing' to New Zealand in October 2003 may have exacerbated medicine-related issues for older people. A combination of the large number of medicines that may be stored in the home and the reduced number of visits to the pharmacy may increase the potential for confusion among the older population; this could result in more adverse events, an increase in the number of doctors' visits and increased health expenditure.

Under the 'stat dispensing' regulations a prescriber must annotate a prescription if the patient is only required to receive a 30-day supply of a particular medicine at any one time. Examples of medicines which may be dispensed at 30-day monthly intervals

include anti-depressants, controlled drugs and relatively expensive medicines. A 3-month 90-day supply usually applies to less expensive medicines such as frusemide and metformin. In some cases a patient could leave the pharmacy with 90-days' supply of some medicines and 30-days' supply of others, which is further complicated by the need to return to the pharmacy on different occasions to collect additional supplies at the required intervals.

1.3 COMPLIANCE, ADHERENCE AND CONCORDANCE

'Compliance' is a term used to describe the extent to which patients follow the directions of a prescriber regarding their medication regime. The term 'adherence' recognises that patients will make decisions as to how closely a regime is followed; the two terms are often used inter-changeably (McElroy, 2002). For the purposes of this research report, the term compliance will be used.

Compliance can be classified into two distinct categories: unintentional or intentional. Unintentional non-compliance can be described as patients who want to follow their medication regime but are unable to do so, perhaps inadvertently (Lowe & Raynor, 2000). Likely reasons for unintentional non-compliance include:

- Poly-pharmacy (Williams, 2002).
- Cognitive impairment leading to forgetfulness and confusion about dosing schedules (Bryant, 2004; Williams, 2002).
- Physical difficulties such as impaired vision, arthritis, impaired hearing and a delayed swallowing reflex (Hattaway, 1996).
- Inadequate instruction during counselling or on medicine labels (Col et al., 1990; Bryant, 2004).
- Language difficulties, particularly in areas with culturally diverse population groups.
- Inability to make the decision about when to take 'as necessary' medicines (Bryant, 2004).

Intentional non-compliance occurs when patients consciously make the decision not to follow the prescribed medication regime. A United Kingdom study of 161 patients found

that 34% of patients made this decision (Lowe & Raynor, 2000), and their reasons included intentionally altering their regime due to side effects of the medicine, adjustment of doses according to symptoms, medicine is perceived not to be working, adjustment of dosing to suit daily routine, and medicines that are perceived not to be needed. Patients may dislike taking tablets, or they perceive the condition to be self-limiting, there are concerns about cost and doses are spreading out to last longer (Lowe & Raynor, 2000). Practical considerations include transport difficulties and lack of access to services, cultural and personal beliefs, beliefs that medicines are chemicals and therefore unnatural, and hesitancy about becoming dependent on a medicine (Bryant, 2004).

Adherence and compliance with therapy are essential for successful medical management in any age group, and patients of all ages have varying degrees of non-compliance. It has been estimated that 50% of medicines used for chronic conditions are not taken as prescribed (WHO Managing Long Term Medical Conditions, 2003). This is not a new phenomenon and nearly 20 years ago it was reported that approximately 80% of people with asthma and 55% of people with diabetes were considered to be non-compliant (Whitney et al., 1993). Estimates of non-compliance in older people vary widely from 21% to 55% (Williams, 2002). Older people are at greater risk of adverse events as a result of non-compliance because they are often affected by multiple chronic diseases as well as the ageing process (Claesson, 1999; Zermansky et al., 2002).

In 1997 the British Pharmaceutical Society acknowledged the significance of each patient being allowed to make informed decisions regarding their medication regime and the term 'concordance' was introduced (McElroy, 2002). 'Concordance' is an agreement that is reached between the patient and the health care provider that takes into account the patient's beliefs and wishes regarding their medicine use. This includes whether, how and when medicines are to be taken. The concordance model of healthcare places emphasis on shared decisions and the relationship between the health professional and the patient is regarded as a partnership (Cox et al., 2004). The term 'concordance' is still relatively new and is often (incorrectly) inter-changed with adherence and/or compliance.

Costs associated with non-compliance

Non-compliance may lead to poor disease control, medicine wastage and hospital admissions (Lowe et al., 2000). An American study reported that 11.4% of 315 elderly hospital admissions were due to non-compliance of medicines (Col et al., 1990). A few years later in New Zealand the Medical Officer of Canterbury District Health Board reported that approximately 15% of hospital admissions among older people were due to incorrect taking of prescribed medicines (Crean, 2003). This is a cause for concern and a potential issue within the health system (Ware, 1991) especially when the cost of hospital based care for people older than 65 years was reported to be higher than for other groups of patients. The psychological cost of hospital admissions should also be considered.

Pharmaceutical care and medication review

The definition of 'pharmaceutical care' is "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patients' quality of life" (Hepler & Strand, 1990). The provision of pharmaceutical care involves co-operation of health professionals to devise, apply and monitor a therapeutic plan that defines specific therapeutic outcomes for the patient. The outcomes should be:

- 1) Cure of disease;
- 2) Elimination or reduction of a patient's symptoms ;
- 3) Arresting or slowing a disease process;
- 4) Preventing a disease.

An Irish study found that when older people were provided with a structured pharmaceutical care service from their community pharmacy, the proportion of patients that were compliant after 18 months was greater than the group that had received 'usual care'. The number of patients reporting issues with their medicines decreased among the pharmaceutical care intervention group (Sturgess et al., 2003). A study in the United Kingdom focussing on medication review found that with the review and education program, patient compliance increased by approximately 10%, and patients' understanding about their medicines also increased (Lowe et al., 2000). As the last point of contact before a patient returns home with their medicines, the pharmacist has the potential to address a number of issues surrounding provision of health and medicines advice to older people.

1.4 BARRIERS IN THE MEDICINE USE PROCESS

Two important barriers to communication are physical and emotional barriers. Physical barriers such as speech impediment, hearing difficulties and poor vision are common for older people. An example of a barrier of a different nature is the multicultural diverse nature experienced in the city of Auckland resulting in language barriers. For example, one in three Auckland inhabitants are born overseas (Statistics New Zealand, 2002). It is an ethical and legal requirement for health professionals to accommodate a patient's language needs (Health and Disability Commissioners' Code of Rights, 1996).

Emotional barriers may be more difficult to identify and include prejudice and perceptions based on a person's appearance, the way they act or smell, and their ethnicity. These barriers may cause a subconscious difference in the service given to patients by health professionals.

Murray and Callahan (2003) suggested "perhaps the single most important way to improve prescribing for older adults is to improve provider-patient communication and provide increased time for this communication". This statement could also be applied to non-prescribing health professionals. For example, pharmacists may be able to improve the use of medicines by spending more time counselling patients and providing advice and information. An American survey of physicians, pharmacists and patients identified key areas of unmet needs in the medicine use process: physicians and pharmacists reported the unmet needs as timing of physician visit (in relation to illness progression), patient counselling, patient use of medicines and patient monitoring (Law et al., 2003). Pharmacists have the skills, knowledge and opportunity to meet the last three unmet needs.

This discussion has highlighted issues such as poly-pharmacy and compliance which are associated with medicine use and health outcomes of older people. By improving the use of medicines among the older population the use of healthcare services and expenditure on medicines may be optimised. In terms of healthcare expenditure, it is estimated that countries allocate up to a third to half of total expenditure specifically for older people and it is therefore important to identify specific issues related to older

people and their medicines so that initiatives to improve the health outcomes of the older population are initiated.

1.5 AIM AND OBJECTIVES

The aim of this research was to explore the use of prescription medicines among older people living in the community in the Waitemata District Health Board (WDHB) which is part of the greater Auckland area, New Zealand. This will provide information regarding problems with medicine use and identify possible gaps in health care provision for older people.

The specific objectives included:

- Identifying the types and frequency of medicine issues that occur among older people in the community;
- Identifying gaps and/or barriers in the medicine use process that may need to be addressed within the health system.

The number of visits to general practitioners increases as people age, and older patients require more medicines to manage their conditions. The ageing process and the increased numbers of medicines result in more complex medicine management needs. In this study, factors that contributed to the optimal use of medicines were memory aids, patient-held medication records, the use of medication organisers, implementation of advice and feedback from prescribers, and verbal and supplementary written information. The most significant barriers to safe and effective medicine use were related to patient understanding, managing large numbers of medicines, and physical inability in opening containers. Medicines were often decanted into alternative containers resulting in medicines which were incorrectly labelled. Intentional non-compliance occurred frequently with participants purposefully taking the medicine differently from labelled instructions. Pharmacists' skills should be utilised through regular medicine reviews and home visits were appropriate, providing more efficient and safer holistic healthcare.

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