Prescription medicines, over-the-counter medicines and complementary and alternative medicines use in baby boomers and older South Australians and their association with health outcomes (as assessed by health services use and quality of life)

Bee Leng Per

BPharm, MSc

2017

Faculty of Health Sciences
School of Medicine
Discipline of Medicine
Population Research and Outcome Studies
The University of Adelaide
Australia

A Thesis submitted for the
degree of Doctor of Philosophy
at the University of Adelaide

Table of Contents

List of Tables

List of Figures

Appendix

Abstract

There is growing evidence of the increasing use of medicines in older generations; however, research undertaken to critically examine specific differences in use among baby boomers and older people is limited. Understanding the complex factors that influence medicine use by baby boomers and older people is vital due to the particular risks associated with medicines use in older generations. In addition, exploring the differences in medicines usage between these generations will help to inform research and health policy to better meet the health care needs of the ageing population.

This thesis, utilising South Australian (SA) population data, examines the difference in prevalence of use of medicines and the influence of social, demographic, chronic conditions and health related factors on the likelihood of being a user of prescription medicines, over-the-counter medicines (OTC) or complementary and alternative medicines (CAM). The thesis also examines the links between medicines use and health outcomes with the evaluation of their beneficial or adverse effects assessed through comparison with quality of life (QoL), health services use and biochemical markers.

Population data from the SA Health Omnibus Survey, an annual face-to-face survey of randomly selected respondents, and the North West Adelaide Health Study (NWAHS) were used. Univariable and multivariable logistic regression analyses were performed in order to investigate the relationships between medicines use and demographic characteristics (including gender, household size, income, education, area of residence, work status, marital status and country of birth). Linear regression analyses were used to determine the relationship between QoL and the independent variables.

The results of the analysis show that the majority of SA baby boomers and older people take a combination of prescription medicines and CAM and a large proportion of older people take a combination of prescription medicines, OTC medicines and CAM. Unemployment was shown to be a key factor for the use of prescription medicines and polypharmacy (five or more medicines), while gender and education were important factors for the use of CAM. The use of CAM and OTC medicines could potentially increase the rate of adverse effects or drug interactions. Therefore, it is important for prescribers to take a detailed medicines history prior to prescribing medicine.

QoL was shown to be lower with increased use of prescription medicines and OTC medicines. However only a weak association was found between the use of CAM and QoL. The specific type of prescription medicines found to be associated with QoL were those prescribed for blood and blood forming organs, musculoskeletal system and nervous system. Cardiovascular disease (CVD) was used as an example of a chronic condition. People with CVD and without CVD had a similar QoL but the increase use of prescription medicines, OTC medicines was associated with lower QoL. Further investigation for association of the use of medicines and QoL is warranted.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

I acknowledge Dr. Graham Lyons edited the thesis.

Signed: (Bee Leng Per)

Date: 14th September 2017

Acknowledgement

My first and sincere thanks is dedicated to my principal supervisor, Professor Anne Taylor, as without her encouragement, I would not be able to finish this thesis. With her tireless effort of proofreading throughout all stages of the thesis, support and also being able to edit the thesis everywhere including on the airplane, hospital, shack or office is astonishing! This has made me move forward and complete the thesis despite the complexity of the study and the length of time it has taken.

Dr. Tiffany Gill, my supervisor, can be straightforward but without her statistical skills and skills in cleaning the data, this thesis would not have been possible and presented. Thank you Tiffany.

Many thanks to all of my colleagues in Population Research and Outcome Studies, for providing me with friendship, editing and encouragement, especially Alicia who helped with the complexity of merging data and writing complicated syntax for the study. Thanks for Lora and Constance for editing the thesis. I also express my gratitude to the people of South Australia who participate in health surveys.

Writing the last chapter was the most challenging task in completing this thesis. I thank Professor Elizabeth Roughead for her valuable time and willingness to discuss the results with me and providing insight. I admire her comprehensive knowledge on pharmacoepidemiology. I also thank Dr. Nicole Pratt, who helped me reanalyse one of the studies.

Finally, I thank my parents. Without them I would not exist in this world and my housemate Hui-Fen who was always encouraging me to complete the task. My Master Hsing Yun always said “Where there is Dharma, there is a Way”.

Conference presentations arising from this thesis

1. Per, B.L., Taylor, A., Gill, T. Trends in use of medicines in baby boomers and older people in South Australia. Poster presentation: Faculty of Health Sciences Postgraduate Research Conference 2013, Adelaide.

2. Per, B.L., Taylor, A., Gill, T. Comparison of the use of prescription and non-prescription medicines between baby boomers and older adults. Oral presentation: National Medicines Symposium 2016, Canberra.

3. Per, B.L., Taylor, A., Gill, T. Association between Quality of life and medicines use for baby boomers and older people, by cardiovascular disease status. Poster presentation: 32nd International Conference on Pharmacoepidemiology & Therapeutic Risk Management 2016, Ireland.

Abbreviation

List of acronyms and abbreviations used in the text

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
AMH	Australian Medicines Handbook
ANOVA	Analysis of variance
ATC	Anatomical Therapeutic Chemical
BMI	Body Mass Index
CAM	Complementary and alternative medicines
CATI	Computer-assisted telephone interviewing
95% CI	95% confidence interval
CVD	Cardiovascular disease
ERP	Estimated resident population
EWP	Electronic White Pages
GDP	Gross Domestic Product
GP	General practitioner
HBP	High blood pressure
HDL	High density lipoprotein
IADL	Instrumental activities of daily living
LDL	Low density lipoprotein
MANOVA	Multivariate analysis of variance
MCS	Mental component summary scores
NCCAM	National Center for Complementary and Alternative Medicine
NCD	Non-communicable disease
NICM	The National Institute of Complementary Medicine
NHMRC	National Health and Medical Research Council
NIH	National Institutes of Health
OR	Odds ratio
OTC	Over the counter medicine
PADL	Physical Activities of Daily Living
PCS	Physical component summary scores
PROS	Population Research & Outcome Studies
QOL	Quality of life
QPL	Questionnaire Programming Language
SA	South Australia
SD	Standard deviation
SLAs	Statistical Local Areas
SF36	The Short Form (36) Health Survey
SPSS	Statistical Package for the Social Science
TCM	Traditional Chinese Medicine
TC	Total cholesterol
TG	Triglyceride
TGA	Therapeutic Goods Administration
UK	United Kingdom
UN	United Nations
USA	United States of America
VIF	Variance inflation factor
WHO	World Health Organisation