

Introduction

- Geriatrics is the study of aging, its physiological phenomena, and diseases common with older people.
- Trends in population ageing have been noticed in Europe for many years.

Objectives

- The aim of this study was to review the literature on the impact and the role of pharmacists in geriatrics.

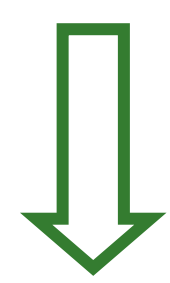
Methods

- A Web portal about the evidences of the impact and the role of pharmacists in specific diseases, programs of care or pharmaceutical activities was developed.
- A **literature search** on Pubmed® was conducted.
- French and English articles about the role and the impact of pharmacists in parenteral nutrition from 1991-2013 were included.
- For each article included, all key indicators that document the the **role of pharmacists with only quantitative or qualitative metrics** and the **impact of pharmacist with statistical analysis** and were included. All relevant **pharmaceutical activities** in that context were identified.

Results

Literature search

98 relevant articles included in our analysis



102 key indicators that document the role of pharmacists with only quantitative or qualitative metrics
227 key indicators that document the impact of pharmacist with statistical analysis
10 pharmaceutical activities

Key indicators (quantitative or qualitative)

Therapeutic target classes	Number of articles
Psychotropic medication	7
Cardiovascular medication	4
Hypnotics	2
Central nervous system drug	2
Alimentary tract and metabolism drugs	2
Nonsteroidal antiinflammatory drug	1
Respiratory drug	1

Settings	Number of articles
Hospital	18
Nursing home	15
Ambulatory	8
Home patients	7
Community pharmacy	7
General practice	5
Clinics	4
Long term care	3
Community	2
Patient care wards	
Internal medicine ward	3
Acute geriatric ward	2
Care service for elderly	1

Categories of key indicators (Number of keys indicators)	Number of articles
Costs (16)	15
Adverse effects	No data
Errors	No data
Morbidity (3)	3
Mortality	No data
Adherence (3)	4
Satisfaction (15)	6
Others (36)	48

An article can have several indicators.

An indicator may be present in one or more articles.

Key indicators that document the impact of pharmacists with statistical analysis

Categories of key indicators (Number of keys indicators)	😊 Number of articles	😐 Number of articles	😞 Number of articles
Costs (11)	4	14	-
Adverse effect (6)	2	5	-
Errors (no data)	-	-	-
Morbidity (96)	14	37	1
Mortality (2)	1	11	-
Adherence (12)	8	8	-
Satisfaction (8)	1	7	-
Others (92)	42	37	-

Legend 😊 Positive impact 😐 Neutral impact 😞 Negative impact



Positive key indicators

« Costs » indicator 3/11

- Drug cost savings from recommendations
- Monthly cost of medication
- Costs of all drugs per patient per day

« Adverse effects » indicators 2/6

- Potential adverse drug reaction
- Adverse drug reactions inpatient period

« Mortality » indicators 1/2

- Number of deaths

« Adherence » indicators 5/12

- Adherence—four item self report measure
- Compliance—Number of dosages unit
- Compliance—Patient interview and unit of dosage measurement
- Compliance—questionnaire
- Compliance—telephone interview

« Satisfaction » indicators 1/8

- Patient satisfaction with pharmacy services—34 items

« Morbidity » indicators 13/96

- Total cholesterol concentration – 12 months
- Total low density lipoprotein concentration—12 months
- Number of contacts with general practitioner—after 12 months
- Vitality
- Behaviour—Crichton Royal Behaviour Rating scale (CRBRS)
- Activities of daily living
- Number of influenza patient
- Number of clinic visits—in past 3 months
- Number of contacts with a specialist—after 12 months
- Number of contacts with a specialist—after 18 months
- Physical functioning
- Revisits to hospital judged drug related
- Readmission

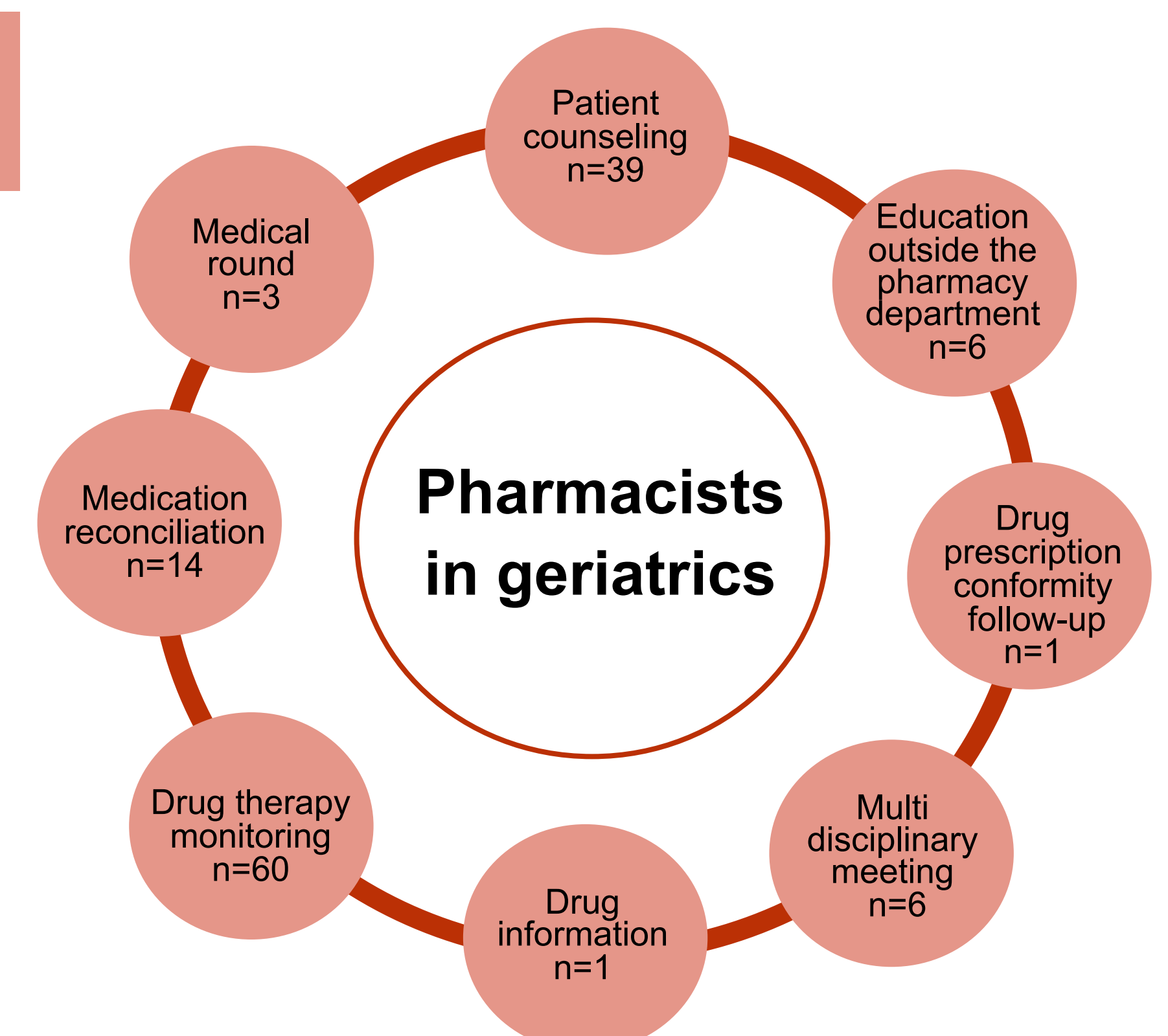
« Others » indicators 46/92

Pharmaceutical activities (n articles)

The following activities were grouped:

Medication reconciliation at the arrival and departure of the patient

Patient counselling (individual and group)



Discussion/Conclusion

- Geriatrics is a healthcare program where the role and impact of pharmacists is well documented.
- Pharmacists have a positive impact with activities such as reducing the number of medication taken and improving drug dosage.
- Pharmacists involved in geriatrics should better document and evaluate their impact on activities such as medication errors.
- The high number and variability in the type of key indicators used limit comparisons between studies.