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Geriatric Health

# INAPPROPRIATE PRESCRIPTION IN ELDERLY : SERIOUS GLOBAL HEALTH CONCERN, LITERATURE ANALYSIS

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**ABSTRACT** **Aim:** To evaluate the use of potentially inappropriate medicines in elderly inpatients in a tertiary care teaching hospital. **Methods:** We searched research articles in pub med, google scholar using key words inappropriate prescription in elderly, beer's criteria, stop/start criteria in last 10 years. Prescriptions were assessed for the use of potentially inappropriate medications in geriatric patients by using American Geriatric Society Beer's criteria (2012) . **Results :**Prevalence of at least one potential inappropriate prescription ( PIP) in elderly is 41.57 %. Prevalence of adverse drug event ( ADE ) due to PIP is 43 % . **Conclusion:** Use of inappropriate medicines is highly prevalent in elderly patients.

**KEYWORDS :** stop/start criteria, beer's criteria, geriatric . , inappropriate prescription.

## INTRODUCTION

Inappropriate prescribing is a failure to provide quality medical care that should be achieved in standard clinical practice.[1 It includes over- and under-prescribing that may result in increased morbidity, hospitalization, and even death. However, the selection of appropriate medication in the elderly people may be a challenging and complex process, leading to increased risk of inappropriate prescribing.[2] Aging is often associated with a growing number of chronic diseases and hence polypharmacy, which increases the risk for adverse drug events (ADEs) [3, 4], drug-related hospitalizations, and related costs [3, 5]. A recent systematic review reported an ADE prevalence up to 23 % for older adults in ambulatory care with preventability rates up to 53 % [4]. Previous studies have identified potentially inappropriate prescribing (PIP) as one of the main risk factors for ADEs is older adults [5–9].

Complexity of pharmacotherapy has increased with increasing medication use, particularly among older adults with multiple morbidities. Potentially inappropriate medication (PIM) is one of the main risk factors for adverse drug events in older people. Inappropriate prescription increase morbidity, mortality, and economic burden to health care system. 20 % of hospitalization for those > 65 years are due to medications they taking. Inappropriate prescription is important underlying cause

## OBJECTIVES

- To determine the prevalence of inappropriate prescription in elderly ( 65 years & more )
- Evaluate medications involved in potential inappropriate prescription (PIP )
- To find out mean number of medications per patient.

## METHODOLOGY

We searched research articles in pub med, google scholar using key words inappropriate prescription in elderly, beer's criteria, stop/start criteria in last 10 years. ( 2016 to 2021 )

**Eligibility criteria -** Manuscripts were eligible for inclusion if they met the following criteria: (1) study design was observational, (2) study participants older patients (65 years and older) all over the world and (3) a published screening method, either implicit or explicit for PIP was used. Manuscripts could be published in English.

Data concerning country, study period, inclusion criteria, used data collection method, and used screening method were collected from the selected manuscripts.

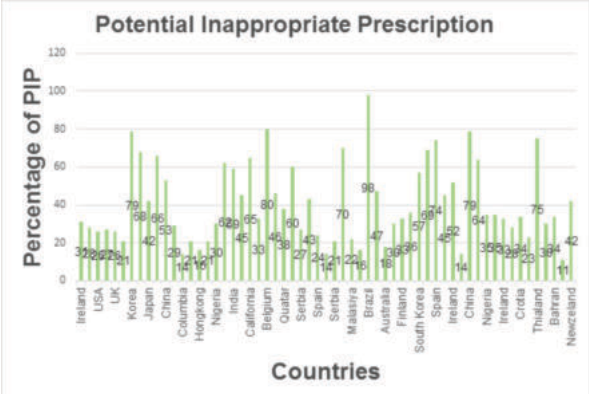
Total 450 article found. Duplicate article and those not fulfilling inclusion criteria, removed. 60 riginal research articles globally analyzed .

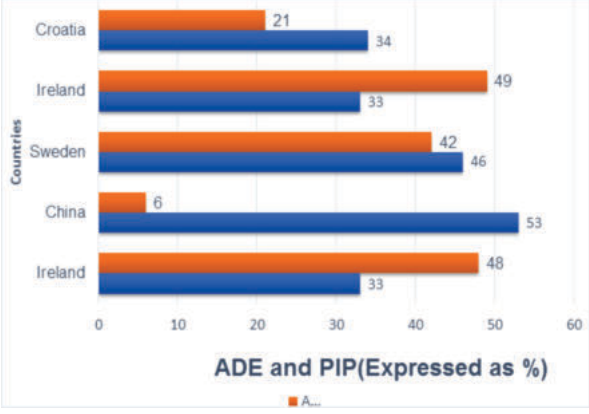
## RESULTS

Prevalence of at least one potential inappropriate prescription ( PIP) in elderly is 41.57 %.

Prevalence of adverse drug event ( ADE ) due to PIP is 43 %.

Mean of drugs used is 5.59




**Medication involved in Inappropriate prescription :**

NSAIDS, Antihistaminic, PPI

Aspirin, Anticholinergics , Laxatives, Statins

Antiepileptics , Digoxin, Benzodiazepines, Antispasmodic

Tricyclic antidepressant, Metoclopramide

## DISCUSSION

The present study evaluated geriatric in-patients for the pattern of potential inappropriate medications. The commonly reported inappropriate medicine metoclopramide (54.3%) was not mentioned in the previous list of Beer's criteria (2002). It is mainly used for gastroparesis and as an antiemetic because of its low cost. It was not used for chemotherapy-induced vomiting in our setup. Though it is approved for the treatment of gastroparesis, its use is largely considered inappropriate because of the possibility of extrapyramidal adverse reactions. Prolonged treatment with metoclopramide can cause serious adverse reactions like persistent tardive dyskinesia.[10]

Other prescribed inappropriate medicines were benzodiazepines (20.4%), NSAIDs (8.6%), and digoxin (5%). Benzodiazepines, antihistamines, anticholinergic drugs, and cardiac glycosides were the potentially inappropriate medicines reported by Indian studies.[11,12] Benzodiazepines are used for the treatment of insomnia and anxiety in the elderly. They can affect the cognitive functionsTheir sedative effect is a risk factor for fall and fracture.[13-14] Digoxin is mainly used for heart failure and atrial fibrillation.

Our data suggest that prescription of inappropriate medications is highly prevalent. Using tools for inappropriate medications should be routinely practiced to avoid potential inappropriate medications in geriatric patients. In one Italian study, use of inappropriate medications was signifi cantly reduced by disseminating the list of drugs always to be avoided along with alternative drugs, reviewing the prescriptions, and through educating sessions.[15 ] Clinicians should always remember the possibility of adverse reactions while treating an elderly patient. In our study, approximately five drugs were found to be prescribed per patient. For avoiding polypharmacy, the drug regimen should clearly be focused and prioritized on a particular goal to be achieved - prolonging longevity; reducing symptoms; minimizing medication burden, adverse effects, and costs.[16]

**Strengths and limitations :** Compared to previously published reviews [10], this systematic review gives a much more global overview of PIP.

we attempted to provide a contemporary and country-specific overview of PIP. Nevertheless, several limitations remain when interpreting the findings of this systematic review. Comparing results from the included manuscripts was difficult due to use of different inclusion criteria.

Additionally, differences in health-care settings and countries may also have impacted PIP prevalence.

Additionally, the review gives an insight in the risk factors most commonly associated with PIP. There is a need for randomized controlled trials evaluating interventions that resolve PIP in the most costeffective way to improve patient-related outcomes such as quality of life and to prevent drug-related problems leading to hospitalizations.

## CONCLUSIONS

- Our findings indicate a high prevalence of inappropriate prescribing in elderly patients.
- There is a need to reduce inappropriate prescription and improve patient care and safety .
- Training of prescribing in elderly is necessary.

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**Conflict of interest -** The authors declare that they have no competing interests.

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