Comprehensive Assessment of Pharmacist-Driven Interventions on Pain Outcomes: An Umbrella Review of Systematic Reviews and Meta-Analyses
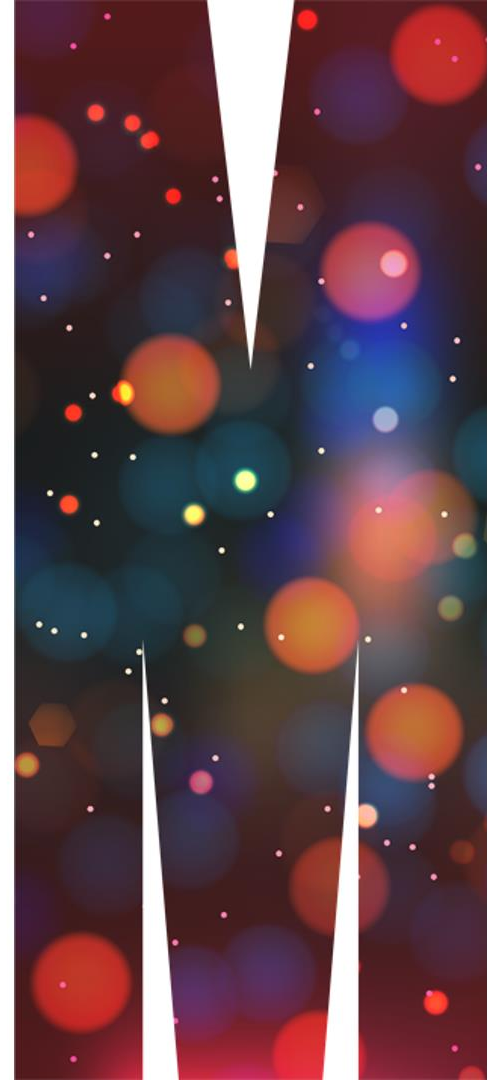
Presenting Author

Sunil Shrestha

B Pharma, PharmD (Post Baccalaureate), PhD Student

School of Pharmacy, Monash University

Presenting Author: Sunil Shrestha Sunil.shrestha@monash.edu
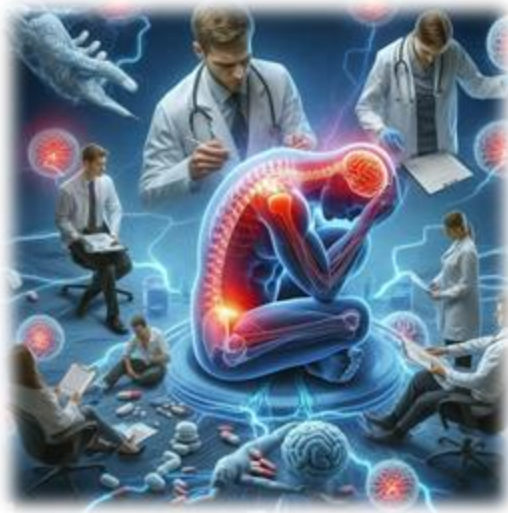
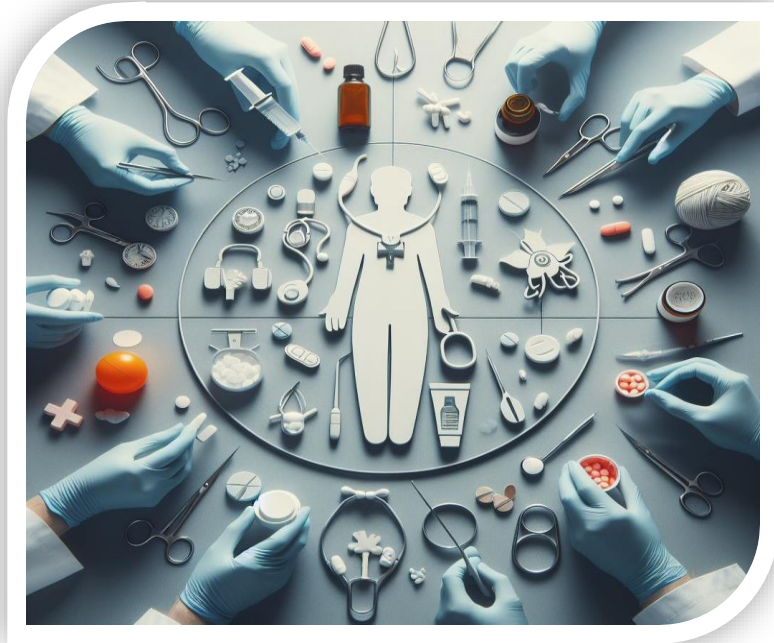# Conflict of Interest

Introduction

Introduction

Pain management involves a **multidisciplinary approach**
Pharmacists have emerged as valuable contributors.
Unique skills and expertise that can optimize **pain outcomes.**

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Pharmacists in Pain Management

- **Role of pharmacists** as medication experts in pain management is **widely acknowledged.**

- Numerous studies highlighting their contribution to providing **evidence-based interventions and ensuring the safe and effective use of analgesics.**

Introduction

- Several systematic reviews have studied **pharmacists' role and their contributions to pain management.**

- With the abundance of SRs investigating pharmacist interventions in pain management

- **Necessary to systematically identify, rigorously evaluate and combine these findings through an umbrella review.**

Objectives

To systematically review published systematic reviews with or without meta-analysis investigating the impact of pharmacist-delivered interventions on pain-related clinical, humanistic and economic outcomes.

Methods

- Registered in PROSPERO (registration number CRD42023440803).

Search Strategy

- A comprehensive search strategy was developed and implemented to identify relevant SRs from inception to June 2023.
- **Electronic databases**
  - APA PsycINFO
  - Ovid MEDLINE®
  - Embase
  - Cochrane Central Register of Controlled Trials
  - CINAHL
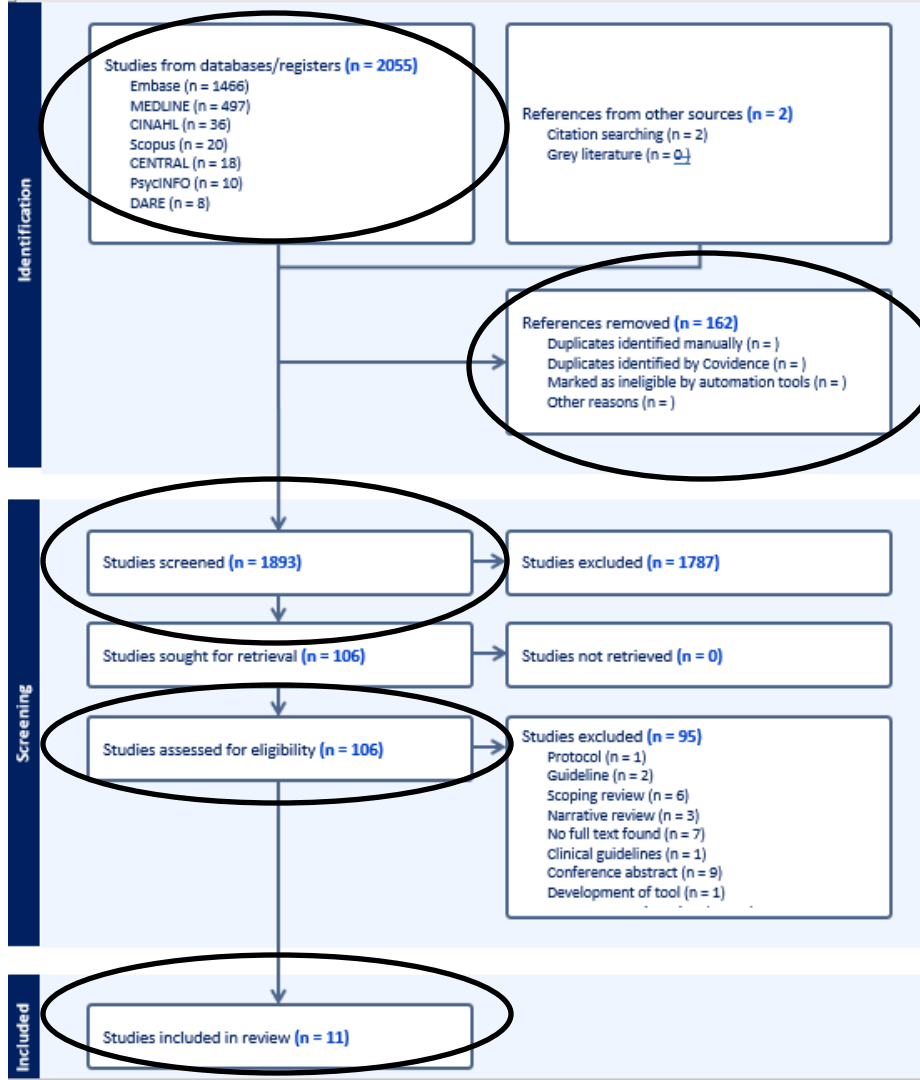 - Scopus and Database of Abstracts of Reviews of Effects (DARE)

PRISMA Diagram

Figure: PRISMA diagram showing the results of the entire search, screening and selection process

results

- **Eleven systematic reviews**

- Published between **2011 and 2023**.

- Included original studies conducted in the USA, Canada, European countries and Asian countries (China and Japan).

- Various settings (Hospital, Clinical, Community, Pain Clinics and Palliative Care)

Results (Pain Types)

54%

Non-Cancer Pain

(low back pain neuropathy, unspecified back pain, neuropathic pain, non specified joint pain, mixed aetiologies, chronic headache, Joint Diseases, Arthritis, skeletal muscle disease, Neck pain, Upper back and arms, etc.)

27%

Cancer Pain

18%

Mixed types of pain

(includes both cancer pain and non cancer pain)

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Results (Pharmacist Delivered Intervention)

Medication Review — 9/11

Patient Education and Counselling — 7/11

ADRs Detection and Management — 6/11

Non-Prescription Drug Recommendations — 4/11

Behavioral Interventions — 4/11

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Results (Pharmacist Delivered Intervention)

Dosage Adjustment	4/11
Referrals	4/11
Interdisciplinary Collaboration	6/11
Psychiatric Consultation	4/11
Pain Assessment	4/11

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Pain Intensity and Pain Relief (9/11)

Medication Management and Adherence (4/11)

Adverse Drug Reactions and Drug-Related Problems (6/11)

Clinical Outcomes

Physical Functioning and Mental Health (2/11)

Healthcare Utilization and Length of Stay (2/11)

Economic Outcomes

Healthcare Cost (1/11)

Increase in Healthcare cost (1/11)

Findings from meta-analysis of included SRs

- Significant pain intensity reductions were found due to pharmacists' interventions, with standardized mean differences (SMDs) ranging from −0.76 to −0.22 across different studies and subgroups.

- Physical functioning improvements were observed, with SMDs ranging from −0.38 to 1.03.

- QoL improvements were reported, with SMDs ranging from 0.29 to 1.03.

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Methodological Quality Assessment

- A MeaSurement Tool to Assess Systematic Reviews (AMSTAR2)

- Most of the included studies (7/11, 63.63%) were determined to be high

- The remaining (4/11, 36.36 %) were determined to be of moderate quality.

Limitations

- Inclusion criteria encompass both SRs involving RCTs and observational studies, **potentially leading to variations in the strength of evidence.**
- Variability in methodologies and reporting standards across SRs **may introduce biases**.
- Reliance on descriptive analysis in SRs, particularly where meta-analyses were not feasible due to heterogeneity or limited data availability**, may limit the accuracy of synthesized findings** and **may hinder the estimation of overall treatment effects.**
- Only included SRs published in English, potentially excluding relevant studies published in other languages.

Conclusion

- Pharmacist-delivered interventions, including medication review and patient education, **have a positive impact on pain management.**

- This review highlights **the critical need to establish standardiz roles for pharmacists in pain management** to maximize the effectiveness of these interventions.

- Future research should focus on **exploring innovative care models, such as pharmacist-independent prescribing**, within collaborative care clinics dedicated to pain management.

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- **Professor Vibhu Paudyal,** School of Pharmacy, College of Medical and Dental Sciences, University of Birmingham; Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, King's College London, London, United Kingdom

QUESTIONS

Sunil.Shrestha@monash.edu

Bio Sunil Shrestha

Sunil Shrestha, currently pursuing a PhD at Monash University's School of Pharmacy, brings extensive experience as a registered pharmacist and clinical researcher from Nepal.

With a background in clinical pharmacy and serving as a visiting faculty member, Sunil has played pivotal roles in enhancing pharmaceutical care and cancer treatment.

Listed among the top 2% Cited Scientists globally with specialization in Health Policy and services by Stanford University-Elsevier.

His research interests encompass pain management, oncology pharmacy practice, pharmacovigilance, evidence-based synthesis, and health outcomes, reflected in his editorial and reviewing contributions to prestigious journals.

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