CHSS
University of Kent

Centre for Health Services Studies

Exploration of the Factors Influencing Opioid Prescribing as Regular Pain-Management Medication for Older People

FINAL REPORT

Dr Emma Hill (GP)

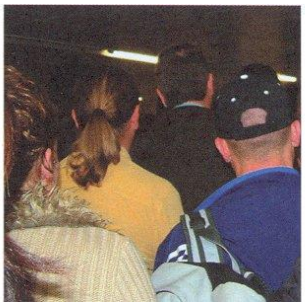
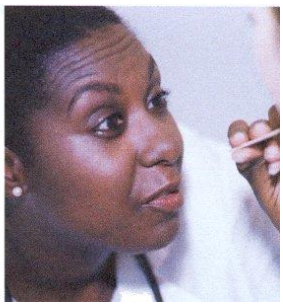
Dr Rasa Mikelyte (Research Assistant)

Dr Vanessa Abrahamson (Research Associate)

Professor Patricia Wilson

09 August 2018



Background

Chronic pain occurs in 45–85% of older people (adults over the age of 65); pain treatment and management are important contributors to quality of life and participation in valued activities in later life[1]. While common, pain in older people appears to be under-recognised and under-treated[2]. Additionally, inappropriate prescription of opioids appears prevalent: initiation of strong opioids without first treating pain with simple analgesics or weak opioids has been identified in one-third of community dwelling older outpatients[3], and strong opiate prescribing is not only more prevalent in older people, but also increasing at the fastest rate in this age group[4]. This is of particular importance as the 'Geriatric Giants', particularly falls, memory problems and incontinence can be exacerbated by opioids[5]. However, findings on changes in opioid prescribing and use over time come from outside of the UK (e.g. Figure 1 exemplifies the rapid increase in opioid prescription in Australia). Not enough is known about the UK context and if the trends in other countries are mirrored in the UK.

Figure 1: Prescriptions for morphine and oxycodone dispensed on the Pharmaceutical Benefits Scheme in Australia, 2002-08, per 1000 population, by 10-year age group[4]

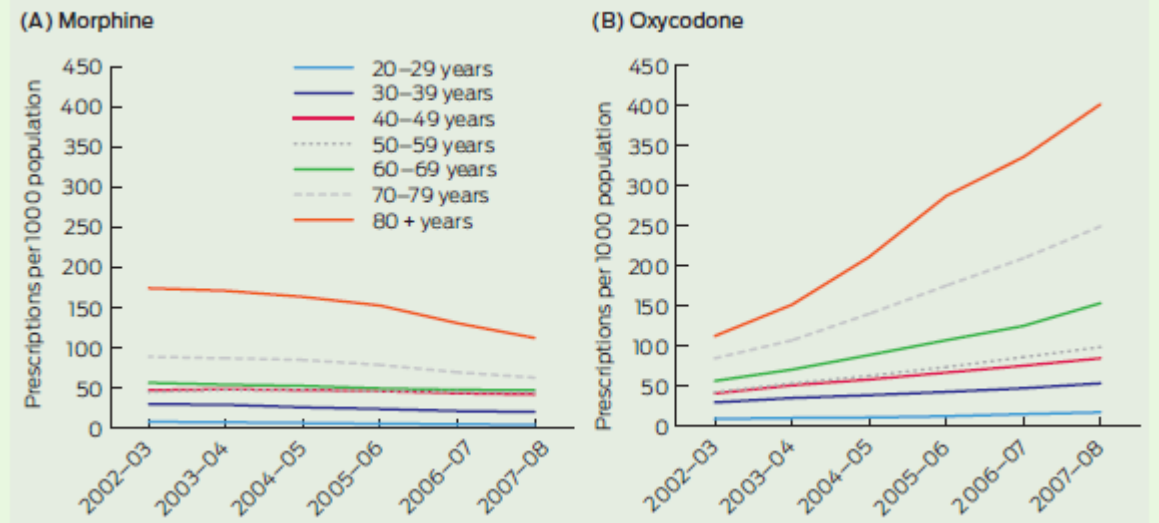


Figure 1 also demonstrates that that patterns of opioid prescribing are not straightforward, and may demonstrate differences depending on variables such as the type of the opioid. A scoping review was deemed necessary to ascertain what is known about factors influencing opioid prescribing as regular pain-management medication for older people and to identify knowledge gaps.

This project was initiated by a General Practitioner (GP) working in East Kent who was aware of high levels of opiate prescribing for chronic non-cancer pain in older adults (75 years and over) within the group practice.

2. Aims & Objectives

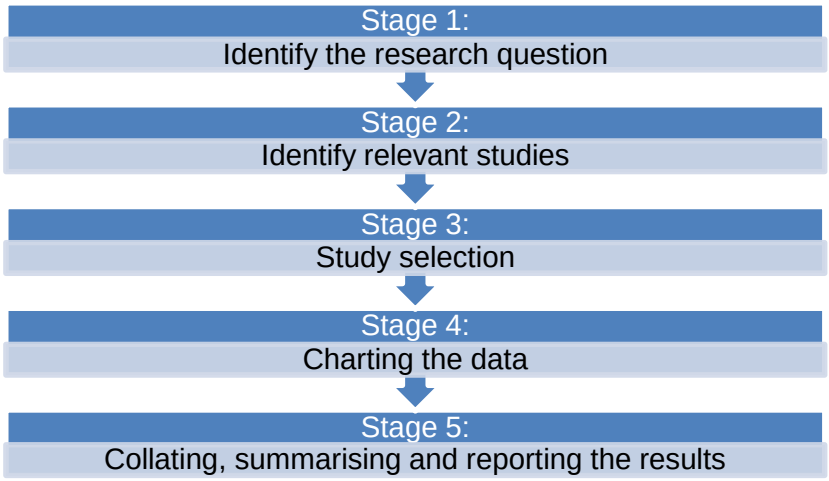
The scoping review aimed to identify existing literature on opioid prescribing for older patients, ascertain inconsistencies in the findings and establish knowledge gaps which will inform further research. The aims were as follows:

- **Objective 1**: Conduct a literature review of academic and grey literature research on opioid prescribing for older adults with non-cancer chronic pain.
- **Objective 2**: Map research findings and their contexts to extract main tendencies in opioid prescribing for older people.
- **Objective 3**: Chart knowledge gaps on the topic to pinpoint the area(s) where further research is required.

3. Methodology

A scoping literature review used Arksey and O'Malley's framework, which offers a rigorous approach suited to identifying research gaps in existing literature[6] (Figure 2).

Figure 2: Arksey and O'Malley's[6] five-stage framework



Stage 1: Identifying the research question

The research question was refined in accordance with peer feedback, with further precision added. The research question asked: *What are the Factors Influencing Opioid Prescribing as Regular Pain-Management Medication for Older People?*

Stage 2: Identifying relevant studies

The search terms were chosen to reflect the focus on opioid prescribing for older people with chronic non-cancer pain. The inclusion/exclusion criteria were as follows:

Inclusion Criteria:

1. Literature form Peer-Reviewed Journals from January 1990 to Sep 2017
2. Grey literature (e.g. policy papers) from January 1990 to Sep 2017
3. Literature in English language only
4. Studies that (exclusively or inclusively) involve older adult participants or looked at external perceptions of older adult pain management

Exclusion Criteria:

1. Bachelor and Masters dissertations; unpublished doctoral theses
2. Existing Reviews (instead of including the review itself, primary sources within the review were extracted and included when applicable)
3. Studies specifically focusing on opioid use, rather than prescribing
4. Studies specifically assessing methodological instruments or approaches
5. Studies on palliative or end-of-life care
6. Studies on opioids as substitution (e.g. for heroin) rather than pain management
7. Guidelines addressing how clinicians *should* prescribe, rather than what affects current prescribing

A conceptual diagram was developed to focus the literature search (see Figure 3). Publications fitting area 5 of the diagram below were included in Stage 2 of the scoping review.

Based on the conceptual framework, the search terms for electronic databases (PubMed, EBSCO Host and Google Scholar) were developed (see Figure 4). The UK Drug Database, a general practitioner and a palliative care clinician were consulted to ensure no specific types of opioids were excluded from the search.

Figure 3: Conceptual Framework Guiding the Literature Search

1. Papers on opioid use for pain management
2. Papers on opioid prescribing
3. Papers on medication prescribing for older people
4. Papers on pain management for older people
5. Papers on opioid prescribing for pain management for older people

Figure 4: Search Terms

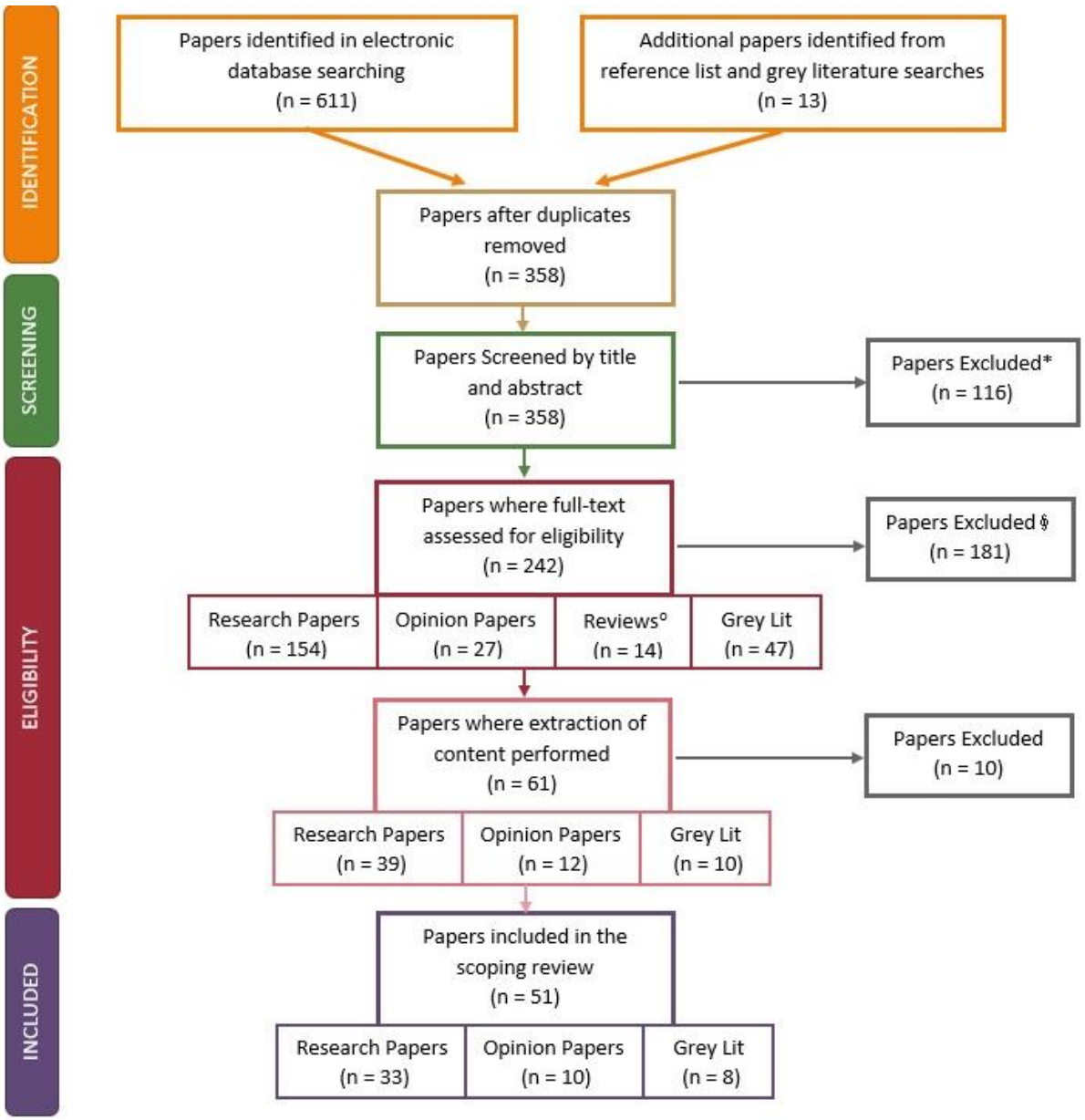
"opioid" *or* "opiate" *or* "oxycodone" *or* "oxycontin" *or* "fentanyl" *or* "hydrocodone" *or* "codyromol" *or* "hydromorphone" *or* "meperidine" *or* "pethidine" *or* "morphine" *or* "codeine" *or* "alfentanil" *or* "dihydrocodeine" *or* "diamorphine" *or* "meptazinol" *or* "pentazocine" *or* "papaveretum" *or* "remifentanil" *or* "buprenorphine" *or* "tramadol" *or* "tapentadol" *or* "dipipanone" *or* "buprenorphine"
AND
"older adult" *or* "older person" *or* "older people" *or* "elders" *or* "elderly" *or* "geriatric"
AND
"prescription" *or* "prescribing" *or* "prescribed"
AND
"pain management" *or* "pain"

Existing systematic reviews were investigated for references to primary research. Grey literature was identified both within the above searches and by searching the archives of relevant 'grey' journals such as *Adverse Reaction Research* periodical.

Stage 3: Study selection

Two researchers (RM, VA) carried out study selection (see Figure 5). The initial search identified 624 papers with 358 remaining once duplicates were removed. These papers were screened by title and abstract; 116 were excluded, leaving 242 to assess by reading the full-text. Nine of the 116 excluded sources were in a foreign language.

Figure 5: Screening Flowchart



* Nine papers were in a foreign language, 107 did not meet inclusion criteria

§ Full text could not be obtained for 10 articles.

° Existing Reviews (e.g. systematic or narrative reviews) were investigated for studies included, no new papers meeting eligibility criteria for content extraction found.

Of the 242 sources selected for full-text screening, 181 were excluded including 10 where full-text could not be obtained. The full-text articles were categorised according to type: primary research (154), systematic reviews (14), grey literature (47) and opinion pieces (27). Each reviewer assessed articles from all categories to ensure a consistent approach.

While a separate methodological approach exists to perform a systematic review of reviews[7], the scoping review included only primary sources[6]. We identified fourteen systematic reviews but none addressed the same question as the current scoping review. We screened these for relevant primary sources of which all but one were duplicates, and the remaining one was later removed as it did not meet the inclusion criteria.

Sixty-one remaining articles were included for data extraction using a data extraction tool (Appendix 1) to ensure a systematic approach. The two reviewers initially worked together, to establish a consistent approach but then continued independently. Sources were categorised into those that should be included in the final synthesis, those that did not meet the inclusion criteria, and those where both researchers were uncertain. The third member of the team (PW) independently reviewed six papers where the primary reviewers remained uncertain. A further 10 sources were excluded (2 by PW).

A final set of 51 sources was included in the scoping review, consisting of 33 research papers, 10 opinion papers and 8 grey literature sources.

Stage 4: Charting the data

This phase involved charting key items from each source using a uniform approach[6] and including author, setting/country, methodology, sample size, aims/objectives and key findings Table 1 summarises the sources, starting with research studies; then papers from academic journals that did not include research (e.g. opinion papers); and finally grey literature. Factors influencing opioid prescribing for older adults are highlighted in bold. Finally, sources were coded according to whether the source suggested that opioids were being underprescribed (1), overprescribed (2) or demonstrated complex prescription patterns (3) or had no explicit stance (4).

Figure 6 demonstrates that a substantial proportion of papers (n=22, 43%) suggested that opioids were being underprescribed for older adult pain management. However, the patterns diverged depending on source as illustrated in Figure 7. While about the same proportion of research papers (39%) and opinion papers (40%) suggest under prescribing is an issue, this figure was much higher in the grey literature (63%). Overall less than one-third of papers identified overprescribing as an issue.

Table 1: Studies appertaining to Factors Influencing Opioid Prescribing for Pain-Management in Older People

Author	Setting	Methodology	Total Number in Sample	Aim/Objectives	Relevant Findings on Influencing Factors	
Research Studies						
Axmon et al (2017)[7]	Sweden; 3 national prescribing registers	Retrospective Database Analysis	7,936 people with intellectual disabilities & 7,936 controls	To describe prescription of potentially inappropriate medications among older people with intellectual disabilities in relation to prescriptions among their age peers in the general population.	People in the **Intellectual Disability** (ID) cohort were less likely to be prescribed tramadol than those in the general population (controls), but there was no difference between the ID and general population cohorts with regards to number of years with prescription.	1
Bell et al (2011)[8]	Finland; community-dwelling individuals	Retrospective Database Analysis	28,093 people with Alzheimer's disease & 28,093 matched controls	To investigate the national pattern of strong opioid use among community-dwelling persons with and without Alzheimer's disease (AD) in Finland.	Although the overall use of opioid analgesics was lower among persons with **Alzheimer's Disease** compared with those without, the use of strong opioids was higher. This was due to higher use of transdermal fentanyl among persons with Alzheimer's Disease.	3
Boerlage et al (2008)[9]	Rotterdam, Netherlands; residential homes only	Questionnaire	183 care home residents (without cognitive impairment)	To investigate the prevalence of pain in elderly people living in Dutch residential homes, pain characteristics and intensities, type of analgesics prescribed and impact of pain on the residents' daily functioning.	Of the residents with pain, 22% did not receive any analgesics and only 3% were prescribed a strong opioid. When analgesics were prescribed, 31% of residents received them only 'as needed'. Almost 60% of residents agreed that **pain was part of ageing and** 72% indicated that they did not always report pain to caregivers. Satisfaction with caregivers' and doctors' attention to pain was 37% and 39% respectively.	1
Bradley et al (2012)[10]	Northern Ireland	Retrospective cross-sectional population study	166,108 persons, aged ≥70 years	To investigate potentially inappropriate prescribing in an older population in a neighbouring jurisdiction (Northern Ireland), using primary care data.	**Polypharmacy** in older adults increases the risk of potentially inappropriate prescribing, including that of opioids.	3

Closs et al (2004)[11]	North of England	Questionnaire (user perspective)	113 nursing home residents from 15 nursing homes	To explore analgesic prescription and administration according to nursing home residents' cognitive status.	Those with greater **cognitive impairment** received fewer analgesics (including opioids) than others.	1
Fain et al (2017)[12]	USA care homes	Retrospective Database Analysis	18,526 nursing home residents (without cancer, cognitive impairment or palliative illness)	To quantify prescription analgesic use of elderly nursing home residents with persistent non cancer pain and to identify individual and facility traits associated with no treatment.	Controlling for other variables, **older age, greater cognitive impairment**, and **self-pay status** were statistically significantly associated with no analgesic prescribing (including opioids) among nursing home residents.	1
Gadzhanova et al (2013)[13]	Australia, veteran community	Retrospective Database Analysis	10,791 people who were initiated with oxycodone in 2010	To explore patterns of non-opioid, weak opioid and strong opioid use prior to initiation of oxycodone for non-cancer pain in a predominantly older Australian population.	Oxycodone is frequently initiated for non-cancer pain without first trialling other analgesics. There is a **lack of attempt to use other, weaker analgesics** first, before initiating strong opioids.	2
Gianni et al (2010)[14]	Italy, 8 geriatric hospital departments	Questionnaire (GP & user perspective)	367 patients	To evaluate the incidence of pain in patients recovering in acute geriatric units, and the perceived effectiveness of pain management strategies in relation to demographic and psychosocial characteristics.	Only 49% of those with pain had any type of treatment, which was adequate for the pain intensity and 74.5% of patients considered the therapy to be of low or no efficacy. Strong opioids were used only in 4.4% of patients with a pain score of 9 and in 36.4% of patients with a pain score of 10, but were not used at all for pain score < 9. **Level of pain *did not* explain prescribing.**	1
Goulding (2004)[15]	USA	Retrospective Survey Analysis	13,003 older patient visits to physician offices	To examine the relationship of patient, visit, and physician characteristics with inappropriate prescribing. To explore the higher risk of inappropriate prescribing that has already been associated with female patients.	**Gender** is associated with opioid prescribing for older people. For visits in which a pain reliever was prescribed, the proportion with an inappropriate pain reliever was higher for elderly female than for elderly male visits (10.8% vs 5.9%; *P*<.001).	2

Green et al (2013)[16]	North Staffordshire, UK	Questionnaire	873 (19%) of community dwelling older people (50+) with joint pain prescribed opioids (out of 4652 in dataset)	To explore the association of patients' socio-demographic and lifestyle factors, and of pain severity, physical functioning, mental health and social participation with prescription of high-strength painkiller medication over 3-years.	For over 50s with joint pain increased opioid prescription over the 3 year period associated with being **younger, male, severe joint pain, poor physical function** and **lower frequency of alcohol consumption**.	4
Griffioen et al (2017)[17]	Netherlands	Questionnaire	435 physicians (324 ECPs and 111 in ECP trainees)	To evaluate the knowledge and attitudes of elderly-care physicians (ECPs) and ECP trainees towards prescribing opioids in long-term care facilities.	**Physicians** working in long-term care in the Netherlands have a positive **attitude** toward opioids and do not consider addiction a reason to refrain from clinical use of opioids. The most important barriers to opioid prescription were reluctance of patients to use opioids (83%), unknown degree of pain (79%) and pain of unknown origin (51%).	1
Iyer (2011)[18]	USA	Cross-sectional analysis	5661 Emergency Department visits (2003-6) by patients aged 65 years or older	To determine the patient characteristics associated with differences in pain score documentation and to evaluate the association between these characteristics and analgesic use in the Emergency Departments.	**Failure to assess pain** limits ability to treat pain. As patient **age** increases, the likelihood of having a pain score documented drops significantly. Documentation of a pain score was associated with increased odds of an analgesic, and opioid, prescription when a pain score was designated. Although gender and race were not predictors of pain documentation, they were predictors of analgesic prescription; African Americans were underprescribed opioid analgesics (but not non-opioid analgesics) and women were prescribed less of any analgesics.	1
Jensen-Dahm et al (2015)[19]	Denmark, community & nursing homes	Cross-sectional database analysis	35,455 older people with dementia, and 870,645 nursing home residents	To explore if frail elderly such as patients with dementia and/or nursing home residents were less likely to receive opioids and particularly strong opioids.	**Nursing home residents** used opioids most frequently (41%), followed by home-living patients with dementia (27.5%) and home-living patients without dementia (16.9%).	2

			without dementia			
Karp et al (2013)[20]	Pittsburgh, USA	Descriptive, hypothesis-generating, longitudinal study	1,109 older people; biennial assessment waves	To examine a variety of clinical and demographic baseline characteristics and their associations with longitudinal patterns of opioid and non-opioid analgesic use in a population-based cohort of rural older adults.	Predictors of long-term use of both opioid and non-opioid analgesics included **female, taking 2 or more prescription medications, and "arthritis" diagnoses**. Long-term opioid use was also associated with age **75–84 years**.	2
Maiti et al (2018)[21]	Tertiary care facility, New York, USA	Retrospective cohort study of patient medical records	9,245 patients	To describe patterns of opiate prescribing and associated outcomes in hospitalised older adults.	There was **no difference in sex, race, ethnicity, or Charlson Comorbidity Index** between opiate exposure groups (no opiates vs prior opiates vs new opiates).	2
Manias (2012)[22]	Australia, 2 geriatric units	Observational study	34 nurses 285 patients	To examine how pain was assessed and managed in older patients who were admitted to geriatric units.	Clinical practice complexities, such **as de-prescribing policy, quick and simple verbal assessments of pain and subjective judgements of 'tolerable' pain** were important in explaining prescribing patterns.	3
Marengoni et al (2015)[23]	Italy	Retrospective Database Analysis	1,332 patients aged over 65 enrolled in 2008; 1,380 in 2010; and 1,340 in 2012	To evaluate the prevalence and type of analgesic and opioid prescriptions at hospital admission and discharge in elderly patients, factors associated with opioid prescription, and the relationship between presence of pain and analgesic prescription at hospital discharge.	The **number of total prescribed drugs** was positively associated with opioid prescription in the three runs; in the third, **dementia and a better functional status** were inversely associated with opioid prescription. The **conservative attitude** of Italian physicians to prescribe opioids in elderly patients changed very little between hospital admission and discharge through a period of 5 years.	1
Morrison & Siu (2000)[24]	New York, USA	Questionnaire Study & Medical Record Review	59 cognitively intact elderly patients with hip fracture and 38 patients with hip fracture and	To examine the treatment of pain following hip fracture in cognitively intact patients and those with advanced dementia.	The majority of elderly hip fracture patients experienced undertreated pain. 83% of cognitively intact patients and 76% of dementia patients did not receive a standing order for an analgesic agent. The advanced **dementia** patients received one-third the	1

			advanced dementia		amount of morphine sulphate equivalents as the cognitively intact patients.	
Niemi-Murola et al (2007)[25]	Helsinki, Finland	Questionnaire Study	430 medical students (out of 680 OR response rate 63%)	To construct an instrument and to assess the effect of pain education on medical students' attitudes at the University of Helsinki.	Final year students felt significantly more often anxious about seeing a chronic pain patient ($p < 0.05$) compared with the first year students. Female students were more anxious about seeing a patient suffering from chronic pain ($p < 0.05$) and they were less confident of their ability to treat chronic pain patients in primary care ($p < 0.001$) than the male students. The **age of the medical students** correlated significantly with not seeing pain as a normal part of ageing and willingness to prescribe opioids for cancer pain.	1
Petre et al (2012)[26]	Baltimore, USA	Retrospective Database Analysis	352 patients selected for elective hip or knee replacement (2005-8)	To explore whether there are age-related differences in pain, opiate use, and opiate side effects after total hip or knee arthroplasty in patients 60 years or older.	**Older patients** (80 years or more) had significantly fewer opiates prescribed but significantly more side effects, including delirium, than the younger patients (60-79yrs), even after adjusting for opiate dose and pain score.	3
Pittrow et al (2003)[27]	Berlin, Germany	Retrospective Database Analysis; Longitudinal Study	996 nursing home residents	To describe the prescription pattern of physicians for nursing home residents and to compare the prescriptions issued by nursing home-based physicians with those by office-based physicians.	There was **no difference** for opiate prescribing in both groups (**nursing home-based physicians versus office-based physicians**).	2
Ponte & Johnson-Tribino (2005)[28]	West Virginia, USA	Survey of family physicians	185 useable surveys out of 537 OR response rate 34.5%	To determine physicians' attitudes, beliefs and knowledge regarding evaluation and treatment of pain.	The majority of respondents (80.0%) were not apprehensive about prescribing high-dose opioids to patients with chronic malignant pain but were anxious about prescribing them to those with chronic non-malignant pain. Most did not administer opioids to individuals	4

					with a **history of substance abuse**. Nearly two-thirds indicated that **scrutiny by regulatory agencies** affected their prescription of opioids. Approximately 60% felt that their formal medical training did not prepare them to effectively manage pain, and exhibited substantial **knowledge gaps**.	
Raji et al (2017)[29]	Texas, USA	Retrospective Database Analysis	Sample size not specified; medication claims 2007-2012 for people aged 66 or older	To examine the longitudinal association of laws regulating pain clinics on opioid-prescribing and opioid-related toxicity among Texas Medicare recipients.	There was a short-lived decline in the monthly percentages of patients who filed a schedule II or schedule III opioid prescription after the 2009 laws regulating pain clinics. The decline lasted about 3 months. Subsequent **new laws** had no effect on the percentages of patients who filed any opioid prescription or were hospitalized for potential opioid toxicity.	4
Rognstad et al (2013)[30]	Norway	Cluster Randomised Controlled Trial of continuing medical education (CME) groups	Intervention data for 41 CMEs (250 GPs), control data for 39 CMEs (199 GPs)	To study the effects of a multifaceted educational intervention on GPs' Potentially Inappropriate Prescriptions for older patients.	29% decrease in Potentially Inappropriate Prescriptions of opioids and spasmolytics for intervention group where **GPs** received additional **education**.	2
Sandvik et al (2016)[31]	Norway, nursing homes	Secondary data analysis of three cross-sectional studies from 2000, 2004 and 2011, and an RCT in 2009	2000 (n = 1,926), 2004 (n = 1,163) and 2011 (n = 1,858) and an RCT in 2009 (n = 850)	To investigate the prescribing patterns of scheduled analgesic drugs in Norwegian nursing home patients from 2000 to 2011, and association with age, gender and cognitive function.	Strong opioid prescription increased from 1.9% in 2000 to 17.9% in 2011, whereas non-steroidal anti-inflammatory drug prescription decreased from 6.8% to 3.2% in the same period. In 2000, 2004 and 2009 (but not 2011) people with **dementia** received fewer analgesics compared with patients without dementia.	2

Shah et al (2012)[32]	UK, nursing homes	Retrospective Database Analysis	10,387 residents in care homes & 403,259 older people in the community	To compare prescribing quality in care homes in England and Wales with the community and with USA nursing homes.	Thirty-three per cent of care home residents in England and Wales received potentially inappropriate medication, including opioids, compared to 21.4% in the community. The potentially inappropriate prescribing rate in USA nursing homes was similar to England and Wales.	2
Shega et al (2006)[33]	Chicago, USA	Cross-sectional analysis of an observational cohort study	115 patient–carer dyads of mostly African American community-dwelling people with dementia and their carers.	To explore the pharmacological treatment of non-cancer pain in persons with dementia and identify predictors associated with insufficient analgesia.	No patients had been prescribed a Class III (strong opioid) drug. Insufficient analgesia was associated with **greater age, Mini-Mental State Examination score of <10, and impairment in daily functioning**. Insufficient analgesia was 1.07 times as likely for each additional year of age, 3.0 times as likely if the subject had **advanced dementia**, and 2.5 times as likely if the patient had any **impairment in activities of daily living**.	1
Shugarman et al (2010)[34]	Virginia, USA	Clinical vignette review of elderly frail patient and follow-on survey.	Of 208 (74%) responding practitioners, 189 with prescribing responsibilities.	To evaluate factors associated with practitioners' intention to address diverse aspects of pain.	Factors associated with greater intent to prescribe an opioid included **female gender, being an attending physician, being a primary care clinician, and greater confidence in pain management skills**. Prescribing opioids was less likely if perceived as an **administrative burden**.	1
Solomon et al (2006)[35]	Pennsylvania, USA	Retrospective Database Analysis of healthcare beneficiaries (1996-2001)	18,099 elderly patients likely to have chronic pain due to osteoarthritis, rheumatoid arthritis or low back pain	To examine patterns of chronic opioid use (defined as at least six 30-day prescriptions in a year) in patients with a comparison group of those with ischemic heart disease.	Participants with **rheumatoid arthritis** were always more likely to be using opioids than the other patient groups, although long-term opioid use in older adults was uncommon overall. Low-potency short-acting opioids were the most commonly prescribed analgesics for chronic users from all patient groups. The **prior use of medicines for psychiatric illness** was associated with long-term opioid use across all diagnosis groups but patients with a **prior psychiatric diagnosis**	3

					were *less* likely to receive long-term opioids. A **greater number of physician visits** was associated with long-term opioid use. **African American** ethnicity was associated with a lower probability of receiving long-term opioids. **Residence in a nursing home** was associated with long-term opioid use in several of the subject groups.	
Spitz et al (2011)[36]	New York, USA	Focus Group Study	23 physicians & 3 nurse practitioners	To describe primary care providers' experiences and attitudes, as well as perceived barriers and facilitators, to prescribing opioids to treat chronic pain in older adults.	Providers perceived multiple barriers to prescribing opioids to older adults with chronic pain and used these medications cautiously. Key barriers were **fear of causing harm (77%)** and the **subjectivity of pain (62%).** Others included **lack of education; problems converting between opioids; concerns about opioid abuse, addiction or dependence;** and **patient/family reluctance** to try an opioid**.** Facilitators included **studies confirming treatment benefit; patient/family education; validated tools for assessing risk and/or dosing for comorbidities;** and **palliative care settings** (versus chronic pain)	2
Veal et al (2014)[37]	Australia, care facilities	Retrospective Database Analysis	7,309 medicine reviews	To explore the use of analgesics among elderly care home residents, including independent predictors of analgesic use, evaluating analgesic use against pain management guidelines and identifying potential medication management issues.	Many residents (28.1%) were regularly prescribed opioids. They were more likely to be prescribed to **females,** and those with a **history of musculoskeletal pain** or **pain not otherwise specified, history of fractures, osteoporosis or taking anxiolytics/hypnotics or other sedating agents**. Patients taking opioids were more likely to have a **history of cancer**; regular dose opioids and optimised paracetamol were more likely to be taken by patients with **congestive heart failure**. Patients with **dementia** were less likely to receive optimised paracetamol, opioids or regular dose opioids.	2

Wes & Dart (2016)[38]	USA, poison centres	Retrospective Database Analysis	57,681 misuse cases reported to participating US poison centres	To examine recent trends in misuse of prescription opioids and associated medical outcomes among older-aged adults (60+ years) and compare the patterns with trends among younger-aged adults (20–59 years).	Population rates of misuse of prescription opioids were higher for **older adults than for younger adults**, and this disparity increased over time.	4
Won et al (2004)[39]	USA (13 states)	Retrospective Database Analysis	21,380 nursing home residents aged 65 and older with persistent pain	To determine the prevalence of analgesic use, their prescribing patterns, and associations with particular diagnoses and medications in patients with persistent pain.	Persistent pain was identified in 49% of residents. One-quarter received no analgesics. There was lower use of opioids by **men** than women and by **African Americans** than whites.	1
Academic Contributions (Non-Research)						
Gold (2017)[40]	USA	N/A	N/A	Opinion piece on opioid prescribing for older people amidst a 'national opioid epidemic'.	The author's starting point is to consider the **patient's goals** and how pain impacts on **daily life**. She argues that if **mobility** declines due to pain (and without analgesia), the impact on health might be greater than prescribing an opioid at an appropriate dose and with close supervision, given that non-steroidal anti-inflammatories (NSAIDs) have greater side effects than opioids on blood pressure and kidney function. (Greater) confusion and delirium in dementia patients may be a result of untreated pain.	3
Kress et al (2014)[41]	Europe & USA	N/A	N/A	To outline the extent of untreated pain in this population and the consequent reduction in quality of life, before articulating the reasons why it is poorly or inaccurately diagnosed.	Pain is frequently under-reported and under-treated with a variety consequences for patients. Medics need more education (e.g. about polypharmacy/drug interactions, routes of administration, assessment) and to communicate better with patients and carers to improve adherence. Suggests using a standardised observational tool to assess pain in dementia.	1

Morone & Weiner (2013)[42]	USA	N/A	N/A	To comment on need for more pain education for clinicians.	Clinicians have insufficient training and a 1-dimensional (sensory) view of pain which influences their prescribing choices.	1
Podichetty et al (2003)[43]	USA	N/A	N/A	To review the management of musculoskeletal pain syndromes in older adults emphasising the potential role of opioid agents in carefully selected patients.	Comorbidities may limit therapeutic choices, particularly in the elderly, where opioids may not be suitable.	4
Prostran et al (2016)[44]	USA	N/A	N/A	To discuss use of opioids for pain management in older adults.	Discrepancy between existing guidelines and lack of knowledge on opioid safety specifically for older adult populations may affect prescribing decisions (author does not specify in what way but suggests this may create variability of practices).	4
Robson-Lane & Booker (2017)[45]	USA	N/A	N/A	To provide a framework for the culturally responsive treatment of pain in Black older adults.	Black older adults are not as likely as White, non-Latino older adults to discuss pain concerns and are also less likely than White individuals to have a prescription for long-acting opioid drugs. Cultural sensitivity is required in pain management.	1
Schofield (2014)[46]	UK	N/A	N/A	To comment on current evidence and future directions on assessment and management of pain in older adults.	Limited evidence on non-pharmacological pain treatments, specifically for older adults, limits treatment options. Under-treatment of pain in care homes may result from: reluctance to report pain to care home staff; acceptance by residents and staff that pain is normal for older patients; low expectation of success from medical staff and concern about side-effects; fear of chemical/pharmacological dependence and/or addiction; lack of awareness of potential strategies to manage pain.	1
Shega et al (2007)[47]	USA	N/A	N/A	To discuss pain management in cognitively impaired older adults	Cognitively impaired adults may be at greatest risk of poor pain control due to under-recognition and under-treatment of pain. Although people with dementia may perceive	4

					pain normally, they may not be able to communicate it effectively. Behaviours associated with dementia, such as challenging behaviour may be a manifestation of pain. Analgesics, including opioids, may cause symptoms that overlap with those of dementia including depression and delirium, thus the risks and benefits must be carefully evaluated.	
Smith & Bruckenthal (2010)[48]	USA	N/A	N/A	To synthesise and discuss implications of opioid analgesia for medically complicated patients.	Age interacts with medically complicated conditions (e.g. renal failure) and makes opioid treatments riskier in terms of their impact on the medical complexities beyond pain.	3
Van Ojik et al (2012)[49]	Netherlands	Literature search	N/A	To determine the appropriateness of the strong-acting opioids buprenorphine, fentanyl, hydromorphone, methadone, morphine, oxycodone and tapentadol in elderly patients	No differentiation can be made between the appropriateness of buprenorphine, fentanyl, hydromorphone, morphine and oxycodone for elderly patients. Methadone is the only opioid contraindicated in patients with long QT interval syndrome and should be given with caution to those at risk of developing prolongation of the QT interval. Because of the long elimination half-life of methadone, there is a risk of drug accumulation in the long-term treatment of chronic pain.	3
Grey Literature						
Best Practice Advocacy Centre New Zealand (2008)[50]	New Zealand	N/A	N/A	To outline several key principles that should be considered when prescribing pain relief for older people.	Good education for prescribers is essential for good pain relief in osteo-arthritis, especially in the case of opioids. There is reluctance to treat non-malignant pain with opioids. Prescribers often incorrectly believe that NSAIDs are safer than opioids.	1
Canadian Institute for Health	Canada	Retrospective Database Analysis	Not specified	To synthesize and explain Pan-Canadian trends in the prescribing of opioids, 2012 to 2016	Older people are prescribed more opioids than their younger counterparts. Prescribing is inversely linked to risk of harm: older people who are at most risk for opioid-related harm	2

Information (2017)[51]					were prescribed strong opioids long-term most often - about 1 in 8 of those prescribed an opioid were prescribed a strong one on a long-term basis.	
Cook (2016)[52]	USA	N/A	N/A	To discuss the effects of policy change on opioid use.	Changing policy and more restrictions on opioid prescribing will mean that older people with chronic pain will be forced to change the way they treat the aches and pains of growing old.	1
Drugs & Therapy Perspectives (2006)[53]	USA	N/A	N/A	To discuss ways to address opioid under-usage for chronic pain in elderly patients	Under-prescribing of opioids in older adults may be a result of: patient reluctance to disclose pain; poor communication (dementia, hearing impairment, dementia, dysphasia, cultural and educational differences); prescriber concern with polypharmacy; prescriber opioid-phobia; tolerance; dependence and addiction; lack of guidelines on opioid use for pain that is neither neuropathic nor nociceptive	1
Express Scripts Lab (2014)[54]	USA	N/A	N/A	To explore opioid use among older adults (65+) in the USA and to identify ways to improve safe prescribing.	There was a 4.5% increase in the use of only opioids for pain management in older adults, between 2009-13. During that same timeframe, the number using only NSAIDs declined by 5.1%. Older people had the highest prevalence of opioid use (8.9% of those aged 65+ in 2013). Thirty percent more women than men took prescription opiates in 2013, which might reflect a higher prevalence of painful chronic conditions such as fibromyalgia. However, men consumed higher amounts of these medications. In the elderly, more women than men take extremely high doses of opiates.	4
Lynch (2011)[55]	USA	N/A	N/A	To provide guidelines on management of drug-drug	Multiple medical conditions, polypharmacy, communication problems, poor adherence,	3

				interaction in older adults receiving opioid treatment	inappropriate prescription and poor continuity of care may impact opioid therapy.	
Peschin & Bens (2016)[56]	USA	N/A	N/A	To comment on the 2016 draft Centers for Disease Control and Prevention Guideline for Prescribing Opioids for Chronic Pain.	Authors comment on limitations in the evidence base with regards identifying chronic pain patients for whom long-term opioid treatment will be most effective; those most at risk of developing physical dependence on opioids; and those who will experience reduced tolerance while on long-term opioid treatment.	1
Siciliano (2006)[57]	USA	N/A	N/A	To discuss issues around pain management (acute and chronic) in elderly adults. Issues included assessment; differential diagnosis of pain and dementia; and treatment options.	There are multiple barriers to effective pain management in adults with dementia which were divided into 3 major categories: a) Patient barriers: patients' knowledge and attitudes around ageing, illness, opioids and pain act as barriers, especially with older people who may regard pain as a normal part of ageing. Cognitive impairment may reduce the ability to express pain and fear of side-effects may result in reluctance to accept opioids for pain relief. b) Professional barriers: knowledge and attitudes towards pain management may reduce appropriate prescription. Knowledge relates to the physiology of pain; the clinical pharmacology of opioids; newer treatments and combinations with other procedures; and fears around side effects, dependence and addiction. Attitudes relate to the priority attached to pain and the accuracy of patient reporting; the perception that pain management is difficult so best avoided; and that pain must be sufficiently severe to warrant medication.	1

					c) Systemic barriers: acute health care is not held responsible for *long-term* pain management; care pathways lack integration and multiple providers do not co-ordinate their approach including that of pain management which may even be overlooked. In rural areas, access to expertise may be limited.	

1. Underprescribing 2. Overprescribing 3. Complex patterns 4. No stance

Figure 6. Author stance on prescribing

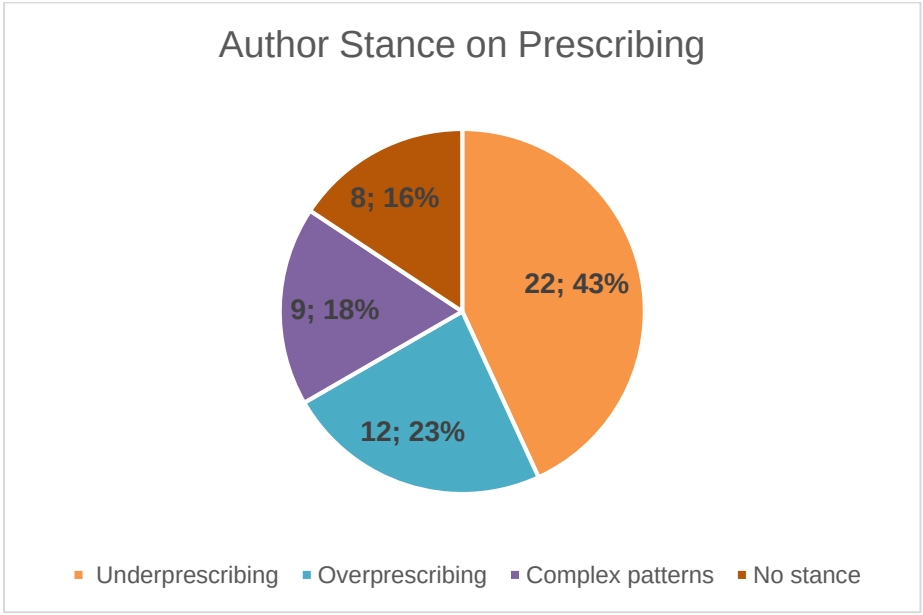
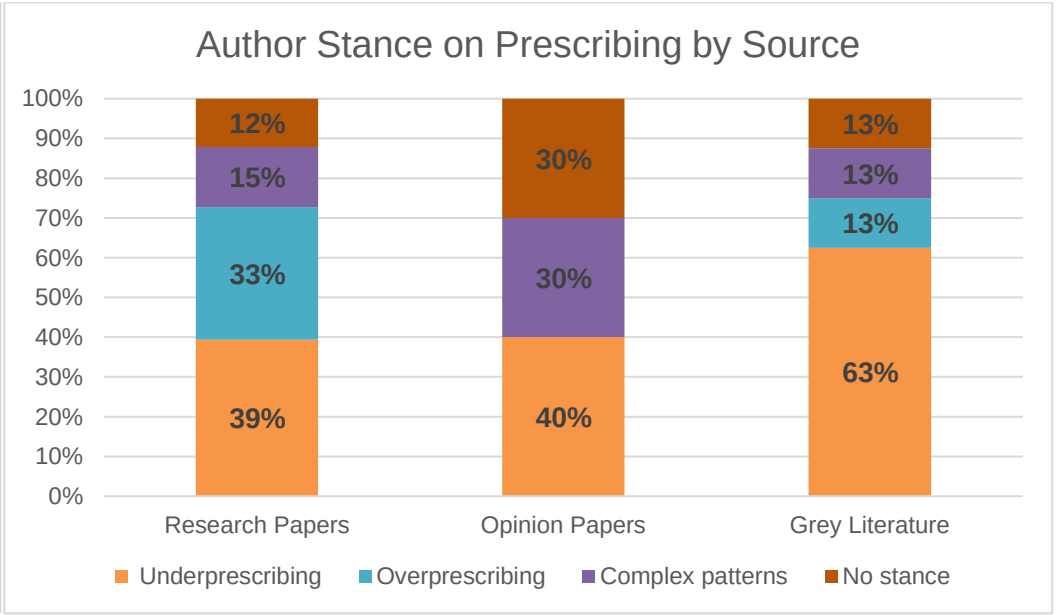


Figure 7. Author stance on prescribing by Source



Stage 5: Collating, summarising and reporting the results

A narrative framework[6] was used to synthesise the findings, analyse knowledge gaps and identify areas of consensus or disagreement. Factors that were associated with prescribing patterns were categorised according to whether they were patient-related, prescriber-driven or system driven.

Figure 8 demonstrates that patient factors including age, gender, race and cognition appeared to influence prescribing decisions by physicians. However, prescriber factors were also important and included demographic characteristics such as the age of the prescriber themselves; attitudes towards the use of opioids, abuse/ dependency and on pain *per se*; and aspects of casework such as the number of contacts with the same patient.

Policy/system factors were set in the context of the changing policy landscape over the last three decades. A key factor was funding criteria for medical care, particularly in the USA. However, system factors were measured rarely and discussed less often than patient and prescriber factors.

Figure 8. Factors influencing opioid prescribing for older adults by 'factor source'

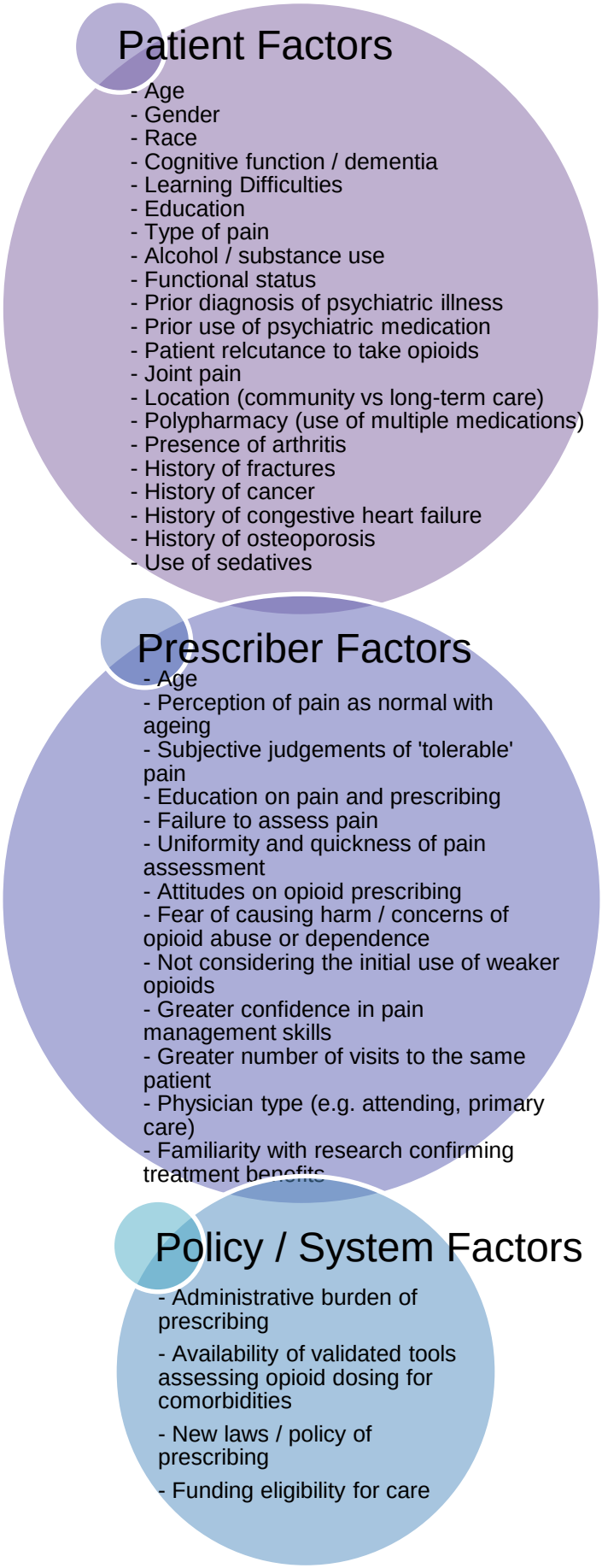


Figure 9. Factors influencing opioid prescribing for older adults by prescribing trend

Factors Associated with Lower Opioids Prescribing

- Older age (both compared to younger adults and among older adult age groups)
- Older age of the prescribing physicians
- Intellectual disability
- Perception of pain as normal for ageing
- Self-funding of nursing care
- Alcohol consumption
- Failure to assess pain
- Subjective judgements of 'tolerable' pain
- Quick and simple verbal assessments of pain even for patients with cognitive impairment
- Better functional status
- 'Conservative' physician attitudes regarding opioids
- Patient history of substance use
- Administrative burden of prescribing
- Prior diagnosis of psychiatric illness
- Physician fear of causing harm / concerns of abuse or dependence
- Patient/family reluctance to take opioids

Factors Associated with Higher Opioid Prescribing

- Lack of attempt to use weaker analgesics
- Severe joint pain
- Positive physician attitudes towards opioids
- Greater physician confidence in pain management skills
- Greater number of physician visits
- Living in a nursing home
- Polypharmacy
- Prescriptions by an *attending* physician
- Prescriptions by a *primary care* physician
- Rheumatoid arthritis
- Prior use of psychiatric medication
- Patient/family education
- Familiarity with research confirming treatment benefits
- Validated tools assessing opioid dosing for comorbidities
- Palliative care settings
- Musculosceletal pain and 'pain not otherwise specified'
- History of fractures
- History of osteoporosis
- Taking sedatives
- History of cancer
- History of congestive heart failure

Factors that Have No Influence on Opioid Prescribing

- Level of pain
- Carlson Comorbidity Index
- Placement of the physicians (nursing home-based vs. office-based)

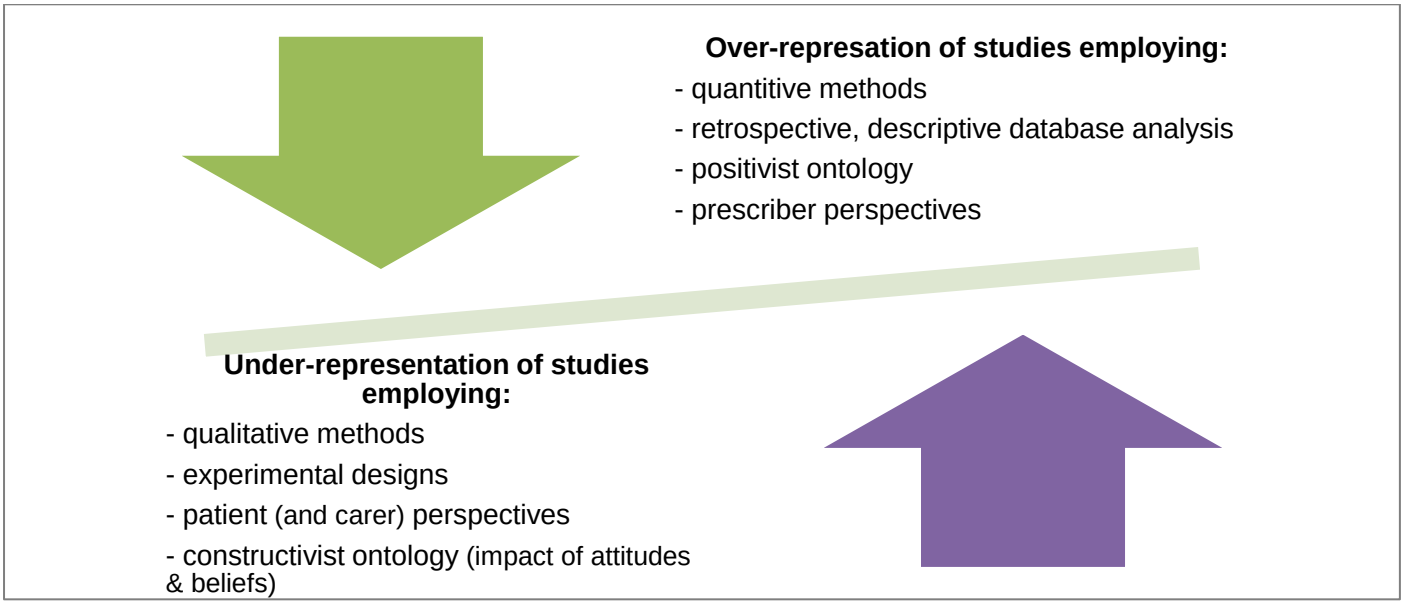
Factors with Conflicting Findgings

- Female gender: 3 studies found increase in prescribing, 1 a decrease, and 1 no effect
- Male gender: 1 study found increased prescribing for males, 1 study found decreased prescribing for males
- Race: 2 studies found lower prescribing for African Americans, 1 study found no influence of race or ethnicity
- Cognitive impairment / dementia / Alzheimer's disease: 1 study found increased prescribing of strong opioids only, 5 studies found decreased prescription of opioids
- New laws on prescribing: 2 studies found lowe prescribing due to deprescribing policy / scrutiny by regulatory agencies, 1 study found no effect of deprescribing policies over a longer period of time
- GP education: 1 study found lower prescribing due to increased GOP education, 2 studies found lack of GP knowledge associated to lower prescribing
- Functional Status: 1 study found better functional status associated with lower prescribing, 1 study found impaired functional status associated with insufficient prescribing, 1 study found poor functional status associated with greater prescribing

As can be seen in Figure 9, the findings were also categorised by whether factors were associated with underprescribing of opioids for older adult pain management, overprescribing had no apparent effect or the findings were contradictory. There was considerable disagreement between some sources, for example, while 3 studies found that women were prescribed more opioids than men, one study found the reverse and another that gender had no effect. This demonstrates that opioid prescribing patterns are highly contextual depending on the setting (e.g. country), the period in time and the interplay with other influencing factors. Cross-cultural findings on opioid prescribing, particularly those set in the USA healthcare market are therefore unlikely to explain current GP opioid prescribing patterns for older adults in the UK.

However, the findings identify factors that maybe pertinent to the UK setting and need further exploration. Figure 10 illustrates the current imbalance in the literature with a heavy emphasis on quantitative studies, most often including secondary data analysis of prescribing databases. Research is mainly descriptive rather than experimental, with a couple of notable exceptions[30, 34]. Much more is known about *what* the influencing factors are, rather than *why* or *how* they operate. For example, while research shows that the patient's age plays a role in opioid prescribing, it remains unclear why and how it affects prescriber decision-making. It is, for instance, possible that age is constructed by a prescriber as an indication of comorbidities and age specific risks of opioids[57], or it may stem from ageism and a belief that pain is a natural part of ageing[25]. Research employing a constructivist ontological viewpoint and primarily considering attitudes and beliefs is lacking. Finally, while current research demonstrates that both patient and prescriber characteristics are influential in prescribing decisions, most research comes from the prescriber perspective and gives comparatively little attention to the perspectives of patients and carers (e.g. their opinions on GP prescribing decisions).

Figure 10. The characteristics of existing research on opioid prescribing for pain relief in older adults.



Conclusions and Recommendations

The findings suggest that a large number of patient, prescriber and system driven factors influence opioid prescribing for chronic pain management in older adults. However, conflicting findings were common and while this maybe have been due to different methodological approaches, it is more likely that opioid prescribing is influenced by a complex interplay of factors and are context dependent.

The review highlighted significant knowledge gaps including a lack of research that:

1. Is UK-specific and considers current and past prescribing policies
2. Includes both the prescriber and the patient perspective
3. Investigates the impact of, knowledge attitudes and beliefs around opioids, pain and older people in both clinicians and patients/carers within the context of multi-morbidity and treatment burden
4. Adopts a qualitative approach to capture the complexity of interactions between patient, clinician and system factors

Based on the above gaps, future research aiming to understand patterns of and factors influencing opioid prescribing for chronic pain-management in older adults in the UK should consider:

- How does the current policy context in the UK affect opioid prescribing decisions for chronic pain management in older people in primary care?
- How does the knowledge, attitudes and beliefs of clinicians affect their prescribing decisions? And similarly, for patients and carers/inter-dependent couples within the context of multiple conditions and treatment burden?
- How do the views of patients/carers and clinicians interact and inform prescribing patterns and medication adherence?

References

1. Gianni W, Ceci M, Bustacchini S, Corsonello A, Abbatecola AM, Brancati AM, Assisi A, Scuteri A, Cipriani L, Lattanzio F. Opioids for the treatment of chronic non-cancer pain in older people. Drugs & aging. 2009 Dec 1;26(1):63-73
2. Cavalieri TA. Pain management in the elderly. Journal of the American Osteopathic Association. 2002 Sep 1;102(9):481.
3. Gadzhanova, S., Bell, J. S., & Roughead, E. E. (2013). What analgesics do older people use prior to initiating oxycodone for non-cancer pain? A retrospective database study. Drugs & aging, 30(11), 921-926.
4. Roxburgh A, Bruno R, Larance B, Burns L. Prescription of opioid analgesics and related harms in Australia. The Medical Journal of Australia. 2011 Sep 5;195(5):280-4.
5. Morley, J. E. The New Geriatric Giants. Clinics in Geriatric Medicine. 2017 Aug 3:33(3):xi-xii
6. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. International journal of social research methodology. 2005 Feb 1;8(1):19-32.
7. Axmon A, Sandberg M, Ahlström G, Midlöv P. Prescription of potentially inappropriate medications among older people with intellectual disability: a register study. BMC Pharmacology and Toxicology. 2017 Dec;18(1):68.
8. Bell JS, Laitinen ML, Lavikainen P, Lönnroos E, Uosukainen H, Hartikainen S. Use of strong opioids among community-dwelling persons with and without Alzheimer's disease in Finland. PAIN®. 2011 Mar 1;152(3):543-7.
9. Boerlage AA, van Dijk M, Stronks DL, de Wit R, van der Rijt CC. Pain prevalence and characteristics in three Dutch residential homes. European Journal of Pain. 2008 Oct;12(7):910-6.
10. Bradley MC, Fahey T, Cahir C, Bennett K, O'Reilly D, Parsons C, Hughes CM. Potentially inappropriate prescribing and cost outcomes for older people: a cross-sectional study using the Northern Ireland Enhanced Prescribing Database. European journal of clinical pharmacology. 2012 Oct 1;68(10):1425-33.
11. Closs SJ, Barr B, Briggs M. Cognitive status and analgesic provision in nursing home residents. Br J Gen Pract. 2004 Dec 1;54(509):919-21.
12. Fain KM, Alexander GC, Dore DD, Segal JB, Zullo AR, Castillo-Salgado C. Frequency and predictors of analgesic prescribing in US nursing home residents with persistent pain. Journal of the American Geriatrics Society. 2017 Feb;65(2):286-93.
13. Gadzhanova S, Bell JS, Roughead EE. What analgesics do older people use prior to initiating oxycodone for non-cancer pain? A retrospective database study. Drugs & ageing. 2013 Nov 1;30(11):921-6.
14. Gianni W, Ceci M, Bustacchini S, Corsonello A, Abbatecola AM, Brancati AM, Assisi A, Scuteri A, Cipriani L, Lattanzio F. Opioids for the treatment of chronic non-cancer pain in older people. Drugs & ageing. 2009 Dec 1;26(1):63-73
15. Goulding, M. R. (2004). Inappropriate medication prescribing for elderly ambulatory care patients. Archives of Internal Medicine, 164(3), 305-312.
16. Green DJ, Bedson J, Blagojevic-Burwell M, Jordan KP, van der Windt D. Factors associated with primary care prescription of opioids for joint pain. European Journal of Pain. 2013 Feb;17(2):234-44.
17. Griffioen C, Willems EG, Kouwenhoven SM, Caljouw MA, Achterberg WP. Physicians' Knowledge of and Attitudes Toward Use of Opioids in Long-Term Care Facilities. Pain Practice. 2017 Jun;17(5):625-32.
18. Iyer RG. Pain documentation and predictors of analgesic prescribing for elderly patients during emergency department visits. Journal of pain and symptom management. 2011 Feb 1;41(2):367-73.
19. Jensen-Dahm C, Gasse C, Astrup A, Mortensen PB, Waldemar G. Frequent use of opioids in patients with dementia and nursing home residents: A study of the entire elderly population of Denmark. Alzheimer's & Dementia. 2015 Jun 1;11(6):691-9.
20. Karp JF, Lee CW, McGovern J, Stoehr G, Chang CC, Ganguli M. Clinical and demographic covariates of chronic opioid and non-opioid analgesic use in rural-dwelling older adults: the MoVIES project. International psychogeriatrics. 2013 Nov;25(11):1801-10.

21. Maiti S, Sinvani L, Pisano M, Kozikowski A, Patel V, Akerman M, Patel K, Smilios C, Nouryan C, Qiu G, Pekmezaris R. Opiate Prescribing in Hospitalized Older Adults: Patterns and Outcomes. Journal of the American Geriatrics Society. 2018 Jan;66(1):70-5.
22. Manias E. Complexities of pain assessment and management in hospitalised older people: a qualitative observation and interview study. International journal of nursing studies. 2012 Oct 1;49(10):1243-54.
23. Marengoni A, Nobili A, Corli O, Djade CD, Bertoni D, Tettamanti M, Pasina L, Corrao S, Salerno F, Marcucci M, Mannucci PM. The stigma of low opioid prescription in the hospitalized multimorbid elderly in Italy. Internal and emergency medicine. 2015 Apr 1;10(3):305-13.
24. Morrison RS, Siu AL. A comparison of pain and its treatment in advanced dementia and cognitively intact patients with hip fracture. Journal of pain and symptom management. 2000 Apr 1;19(4):240-8.
25. Niemi-Murola L, Nieminen JT, Kalso E, Pöyhiä R. Medical undergraduate students' beliefs and attitudes toward pain - How do they mature?. European Journal of Pain. 2007 Aug;11(6):700-6.
26. Petre BM, Roxbury CR, McCallum JR, DeFontes III KW, Belkoff SM, Mears SC. Pain reporting, opiate dosing, and the adverse effects of opiates after hip or knee replacement in patients 60 years old or older. Geriatric orthopaedic surgery & rehabilitation. 2012 Mar;3(1):3-7.
27. Pittrow D, Krappweis J, Rentsch A, Schindler C, Hach I, Bramlage P, Kirch W. Pattern of prescriptions issued by nursing home-based physicians versus office-based physicians for frail elderly patients in German nursing homes. Pharmacoepidemiology and drug safety. 2003 Oct;12(7):595-9.
28. Ponte CD, Johnson-Tribino J. Attitudes and knowledge about pain: an assessment of West Virginia family physicians. Fam Med. 2005;37(7):477-80.
29. Raji MA, Kuo YF, Chen NW, Hasan H, Wilkes DM, Goodwin JS. Impact of laws regulating pain clinics on opioid prescribing and opioid-related toxicity among Texas Medicare Part D beneficiaries. Journal of pharmacy technology. 2017 Apr;33(2):60-5.
30. Roxburgh A, Bruno R, Larance B, Burns L. Prescription of opioid analgesics and related harms in Australia. The Medical Journal of Australia. 2011 Sep 5;195(5):280-4.
31. Sandvik R, Selbaek G, Kirkevold O, Husebo BS, Aarsland D. Analgesic prescribing patterns in Norwegian nursing homes from 2000 to 2011: trend analyses of four data samples. Age and ageing. 2016 Jan 1;45(1):54-60.
32. Shah SM, Carey IM, Harris T, DeWilde S, Cook DG. Quality of prescribing in care homes and the community in England and Wales. Br J Gen Pract. 2012 May 1;62(598):e329-36.
33. Shega, J. W., Hougham, G. W., Stocking, C. B., Cox-Hayley, D., & Sachs, G. A. (2006). Management of noncancer pain in community-dwelling persons with dementia. Journal of the American Geriatrics Society, 54(12), 1892-1897.
34. Shugarman LR, Asch SM, Meredith LS, Sherbourne CD, Hagenmeier E, Wen L, Cohen A, Rubenstein LV, Goebel J, Lanto A, Lorenz KA. Factors associated with clinician intention to address diverse aspects of pain in seriously ill outpatients. Pain Medicine. 2010 Sep 1;11(9):1365-72.
35. Solomon DH, Avorn J, Wang PS, Vaillant G, Cabral D, Mogun H, Stürmer T. Prescription opioid use among older adults with arthritis or low back pain. Arthritis Care & Research: Official Journal of the American College of Rheumatology. 2006 Feb 15;55(1):35-41.
36. Spitz A, Moore AA, Papaleontiou M, Granieri E, Turner BJ, Reid MC. Primary care providers' perspective on prescribing opioids to older adults with chronic non-cancer pain: a qualitative study. BMC geriatrics. 2011 Dec;11(1):35.
37. Veal FC, Bereznicki LR, Thompson AJ, Peterson GM. Pharmacological management of pain in Australian aged care facilities. Age and ageing. 2014 Jun 13;43(6):851-6.
38. West NA, Dart RC. Prescription opioid exposures and adverse outcomes among older adults. Pharmacoepidemiology and drug safety. 2016 May;25(5):539-44.
39. Won AB, Lapane KL, Vallow S, Schein J, Morris JN, Lipsitz LA. Persistent nonmalignant pain and analgesic prescribing patterns in elderly nursing home residents. Journal of the American Geriatrics Society. 2004 Jun 1;52(6):867-74.

40. Gold J (2017) Prescribing opioids to seniors: it's a balancing act. Kaiser Health News https://khn.org/news/prescribing-opioids-to-seniors-its-a-balancing-act/
41. Kress HG, Ahlbeck K, Aldington D, Alon E, Coaccioli S, Coluzzi F, Huygen F, Jaksch W, Kalso E, Kocot-Kępska M, Mangas AC. Manageing chronic pain in elderly patients requires a CHANGE of approach. Current medical research and opinion. 2014 Jun 1;30(6):1153-64.
42. Morone NE, Weiner DK. Pain as the fifth vital sign: exposing the vital need for pain education. Clinical therapeutics. 2013 Nov 1;35(11):1728-32.
43. Podichetty VK, Mazanec DJ, Biscup RS. Chronic non-malignant musculoskeletal pain in older adults: clinical issues and opioid intervention. Postgraduate medical journal. 2003 Nov 1;79(937):627-33.
44. Prostran M, Vujović KS, Vučković S, Medić B, Srebro D, Divac N, Stojanović R, Vujović A, Jovanović L, Jotić A, Cerovac N. Pharmacotherapy of pain in the older population: the place of opioids. Frontiers in ageing neuroscience. 2016 Jun 16;8:144.
45. Robinson-Lane SG, Booker SQ. Culturally responsive pain management for Black older adults. Journal of gerontological nursing. 2017 Aug 1;43(8):33-41.
46. Schofield P. Assessment and management of pain in older adults: current perspectives and future directions. Scott Univ Med J, 2014 3, p.03.
47. Shega J, Emanuel L, Vargish L, Levine SK, Bursch H, Herr K, Karp JF, Weiner DK. Pain in persons with dementia: complex, common, and challenging. The journal of pain. 2007 May 1;8(5):373-8.
48. Smith H, Bruckenthal P. Implications of opioid analgesia for medically complicated patients. Drugs & ageing. 2010 May 1;27(5):417-33.
49. van Ojik AL, Jansen PA, Brouwers JR, & van Roon EN. Treatment of chronic pain in older people. Drugs & ageing, 2012 29(8), 615-625.
50. Best Practice Advocacy Centre New Zealand. Dilemmas: Recognition and treatment of pain in elderly people. Best Practice Journal, 2008 11, 14-18
51. Canadian Institute for Health Informantion (2017). Pan-Canadian Trends in the Prescribing of Opioids, 2012 to 2016. Ottawa, ON: CIHI
52. Cook, D. (2016). Seniors facing a painful retreat from opioid treatment. BenefitsPRO website
53. Drugs & Therapy Perspectives (2006). Appropriate prescribing and education can help address opioid underusage for chronic pain in elderly patients. Drugs & Therapy Perspectives, 22, 7-11.
54. Express Scripts Lab (2014). A nation in pain: Focussing on US opioid trends for treatment of short-term and long-term pain. An Express Scripts Report.
55. Lynch, T. (2011). Management of drug-drug interactions: considerations for special populations - focus on opioid use in the elderly and long term care. The American journal of managed care, 17, S293-8.
56. Peschin, S. & Bens, C. (2016). Alliance for Ageing Research Response to Draft Guideline for Prescribing Opioids for Chronic Pain.
57. Siciliano, P. (2006, September). Chronic pain in cognitively impaired elderly: challenges in assessment, diagnosis, and treatment. In Forum on Public Policy: A Journal of the Oxford Round Table. Forum on Public Policy.

Appendix A

DATA EXTRACTION TOOL

	Subheading		For completion by reviewer(s)
Bibliographic details	**Full citation**		
	Type of paper	*What is the research design or review style [classify as the main pitch of the paper]*	1. Theory or conceptual framework ☐ 2. Editorial review, commentary or opinion ☐ 3. Systematic review ☐ 4. RCT ☐ 5. Non-RCT experimental or quasi-experimental study ☐ 6. Questionnaire survey ☐ 7. Qualitative interview study ☐ 8. Ethnographic study ☐ 9. Mixed methodology case study ☐ 10. Action research ☐ 11. Tool/checklist/model ☐ 12. Guideline/protocol ☐ 13. Comparative case study ☐ 14. Others (Specify: _____)
	Name of reviewer		Reviewer 1 ☐ Reviewer 2 ☐ Reviewer 3 ☐
	Eligible?	*Does the evidence fit within the scope of the review?*	Yes ☐ No ☐ Unclear ☐ If 'no', please give reason: _____
	Study aims	*What were the study's aims and purpose?*	
	Evaluative summary	*Draw together brief comments on the study as a whole and its strengths and weaknesses. Is further work required? What are its implications for policy, practice and theory, if any?*	
	Perspective		Users ☐ Carers ☐ GPs ☐ Other Prescribers ☐ Non-Prescribing Professionals ☐ Others (Specify: _____)
	Area and setting	*What is the country and setting of the study?*	
	Timing	*Over what period did the data collection take place?*	

Sample	**Inclusion criteria**	*Who was included in the study?*	
	Exclusion criteria	*Who was excluded from the study?*	
	Selection	*How was the sample selected? Were there any factors that influenced how the sample was selected?*	
	Size	*What is the size of the sample and groups comprising the study?*	
Data Collection & Analysis	**Methods**	*What data collection methods were used?*	
	Role of researcher	*What is the role of the researcher within the setting? Are there any potential conflicts of interest?*	
	Data analysis	*How are the data analysed?*	
	Opioids	*What types of opioids are being looked at?*	
	Outcome Measures	*What outcome measures were adopted?*	
Findings	**What are the main results and in what way are they surprising, interesting, or suspect?** [Include any intended and unintended consequences]		
	What are the factors explaining opioid prescribing?		
	What is the overall view on opioid prescribing for older adults? [over-prescription, under-prescription, mixed, or specific trends]		
Conclusions	**What conclusion did the authors draw from the findings?**		
Decisions	**Inclusion**	*Should this study be included in the final review?*	Yes ☐ No ☐ Unclear ☐
Main Point			

Exploration of the Factors Influencing Opioid Prescribing as Regular Pain-Management Medication for Older People

V. Abrahamson, E. Hill, R. Milkelyte, & P. Wilson

Background

- **Chronic pain occurs in 45–85% of older people**; pain treatment and management treatment is important to allow maintenance of a good quality of life and an active role in both family and society where possible (1).
- While common, pain in older people is also **under-recognised and under-treated** (2).
- **Inappropriate prescription of opioids is prevalent:**
  - Initiation of strong opioids without first treating pain with simple analgesics or weak opioids was found in one third of community dwelling older outpatients (3)
  - Strong opioid prescribing is not only more prevalent in older people, but also increasing at the fastest rate in this age group (4). This is of particular importance as the 'Geriatric Giants' such as falls, memory problems and incontinence can all be exacerbated by opioids (5).
- While 'potentially inappropriate opioid prescribing' to manage pain in older people is common (3-5), no attempts to date have been made to **map the numerous factors that may influence prescribing decisions.**

Aims & Objectives

- The primary **aim of this review is to identify key findings on factors influencing opioid prescribing in older adult populations.** To achieve this aim, a scoping literature review is currently being conducted. The scoping review methodology offers a rigorous approach to reviewing literature in areas that are unchartered and complex.
- To achieve project aims a number of key research objectives have been identified:
  - **Objective 1:** Conduct a scoping review of academic and grey literature research on opioid prescribing for older adults
  - **Objective 2:** Map research findings and their contexts to extract main tendencies in opioid prescribing for older people.
  - **Objective 3:** Chart knowledge gaps on the topic to pinpoint the areas where further research is of greatest priority.

Preliminary Findings

- Some aspects affecting opioid prescribing for older people include:
  - Age
  - Gender
  - Race
  - Dwelling (community vs care/nursing home)
  - Living arrangements (alone vs with someone)
  - Cognitive status
  - Physical function
  - Number of conditions
  - Type of condition(s)
  - Previous use of opioids
  - Cause, duration and severity of pain
  - Prescriber characteristics (e.g. years of experience)
- However, **little is known on how prescriber attitudes/opinions affect opioid prescribing for older people.**

Focus of the Literature Search

1 Research on opioid use for pain management

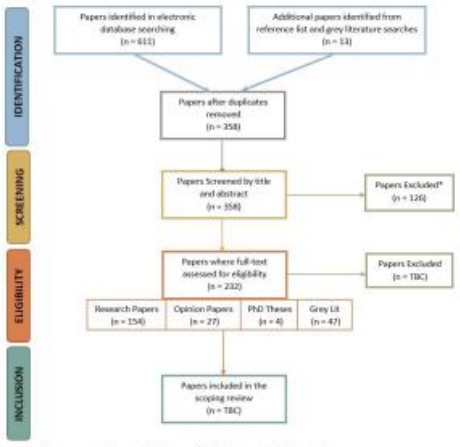
2 Research on opioid prescribing

3 Research on medication prescribing for older people

4 Research on pain management for older people

5 Research on opioid prescribing for pain management for older people

Screening Flowchart



*Nine papers were in a foreign language, 117 did not meet inclusion criteria

What's Next?

- The findings from the current project will be used to:
  - design a qualitative study investigating GP reasoning and perceptions around opioid prescription in older people
  - develop an application for further funding (e.g. NIHR) to support the study
  - the study will be developed with support from the NIHR Research Design Service South East.

References
[1] Gianni W, Ceci M, Bustacchini S, Corsonello A, Abbatecola AM, Brancati AM, Aiuto A, Sciuteri A, Ciprani L, Lattanzio F. Opioids for the treatment of chronic non-cancer pain in older people. Drugs & aging. 2009 Dec 1;26(1):63-73.
[2] Cavalieri TA. Pain management in the elderly. Journal of the American Osteopathic Association. 2002 Sep 1;102(9):481.
[3] Gadzhanova, S., Bell, J. S., & Roughead, E. E. (2011). What analgesics do older people use prior to initiating oxycodone for non-cancer pain? A retrospective database study. Drugs & aging, 30(11), 921-928.
[4] Roxburgh A, Bruno R, Larance B, Burns L. Prescription of opioid analgesics and related harms in Australia. The Medical Journal of Australia. 2011 Sep 5;195(5):280-4.
[5] Morley, J. E. The New Geriatric Giants. Clinics in Geriatric Medicine. 2017 Aug 1;33(3):xi-xii.

Funding towards the review was provided by the South East Thames RCGP Faculty Board

CHSS University of Kent