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

FINAL REPORT

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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. While common, pain in older people appears to be under-recognised and under-treated. 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, and strong opiate prescribing is not only more prevalent in older people, but also increasing at the fastest rate in this age group. This is of particular importance as the 'Geriatric Giants', particularly falls, memory problems and incontinence can be exacerbated by opioids. 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

Figure 1 also demonstrates 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 literature⁶ (Figure 2).

![Figure 2: Arksey and O'Malley's five-stage framework](image-url)
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 from 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.
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\(^\text{7}\), the scoping review included only primary sources\(^\text{6}\). 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\(^\text{6}\) 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

<table>
<thead>
<tr>
<th>Author</th>
<th>Setting</th>
<th>Methodology</th>
<th>Total Number in Sample</th>
<th>Aim/Objectives</th>
<th>Relevant Findings on Influencing Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axmon et al (2017)⁷</td>
<td>Sweden; 3 national prescribing registers</td>
<td>Retrospective Database Analysis</td>
<td>7,936 people with intellectual disabilities &amp; 7,936 controls</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Bell et al (2011)⁸</td>
<td>Finland; community-dwelling individuals</td>
<td>Retrospective Database Analysis</td>
<td>28,093 people with Alzheimer’s disease &amp; 28,093 matched controls</td>
<td>To investigate the national pattern of strong opioid use among community-dwelling persons with and without Alzheimer’s disease (AD) in Finland.</td>
<td>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.</td>
</tr>
<tr>
<td>Boerlage et al (2008)⁹</td>
<td>Rotterdam, Netherlands; residential homes only</td>
<td>Questionnaire</td>
<td>183 care home residents (without cognitive impairment)</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Bradley et al (2012)¹⁰</td>
<td>Northern Ireland</td>
<td>Retrospective cross-sectional population study</td>
<td>166,108 persons, aged ≥70 years</td>
<td>To investigate potentially inappropriate prescribing in an older population in a neighbouring jurisdiction (Northern Ireland), using primary care data.</td>
<td>Polyparmacy in older adults increases the risk of potentially inappropriate prescribing, including that of opioids.</td>
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<tr>
<td>Study</td>
<td>Setting</td>
<td>Study Design</td>
<td>Population Size</td>
<td>Purpose</td>
<td>Findings</td>
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<td>Closs et al (2004)</td>
<td>North of England</td>
<td>Questionnaire (user perspective)</td>
<td>113 nursing home residents from 15 nursing homes</td>
<td>To explore analgesic prescription and administration according to nursing home residents' cognitive status.</td>
<td>Those with greater cognitive impairment received fewer analgesics (including opioids) than others.</td>
</tr>
<tr>
<td>Fain et al (2017)</td>
<td>USA care homes</td>
<td>Retrospective Database Analysis</td>
<td>18,526 nursing home residents (without cancer, cognitive impairment or palliative illness)</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Gadzhanova et al (2013)</td>
<td>Australia, veteran community</td>
<td>Retrospective Database Analysis</td>
<td>10,791 people who were initiated with oxycodone in 2010</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Gianni et al (2010)</td>
<td>Italy, 8 geriatric hospital departments</td>
<td>Questionnaire (GP &amp; user perspective)</td>
<td>367 patients</td>
<td>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.</td>
<td>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 &lt; 9. Level of pain did not explain prescribing.</td>
</tr>
<tr>
<td>Goulding (2004)</td>
<td>USA</td>
<td>Retrospective Survey Analysis</td>
<td>13,003 older patient visits to physician offices</td>
<td>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.</td>
<td>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&lt;.001).</td>
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<td>Study</td>
<td>Country</td>
<td>Study Design</td>
<td>Sample Description</td>
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<tr>
<td>Green et al (2013)16</td>
<td>North Staffordshire, UK</td>
<td>Questionnaire</td>
<td>873 (19%) of community dwelling older people (50+) with joint pain prescribed opioids (out of 4652 in dataset)</td>
<td>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.</td>
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<td>Griffioen et al (2017)17</td>
<td>Netherlands</td>
<td>Questionnaire</td>
<td>435 physicians (324 ECPs and 111 in ECP trainees)</td>
<td>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%).</td>
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<tr>
<td>Iyer (2011)18</td>
<td>USA</td>
<td>Cross-sectional analysis</td>
<td>5661 Emergency Department visits (2003-6) by patients aged 65 years or older</td>
<td>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.</td>
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<tr>
<td>Jensen-Dahm et al (2015)19</td>
<td>Denmark, community &amp; nursing homes</td>
<td>Cross-sectional database analysis</td>
<td>35,455 older people with dementia, and 870,645 nursing home residents</td>
<td>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%).</td>
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<td>Study</td>
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<td>Karp et al (2013)</td>
<td>Pittsburgh, USA</td>
<td>Descriptive, hypothesis-generating, longitudinal study</td>
<td>1,109 people; biennial assessment waves</td>
<td>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.</td>
<td>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.</td>
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<tr>
<td>Maiti et al (2018)</td>
<td>Tertiary care facility, New York, USA</td>
<td>Retrospective cohort study of patient medical records</td>
<td>9,245 patients</td>
<td>To describe patterns of opiate prescribing and associated outcomes in hospitalised older adults.</td>
<td>There was no difference in sex, race, ethnicity, or Charlson Comorbidity Index between opiate exposure groups (no opiates vs prior opiates vs new opiates).</td>
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<tr>
<td>Manias (2012)</td>
<td>Australia, 2 geriatric units</td>
<td>Observational study</td>
<td>34 nurses 285 patients</td>
<td>To examine how pain was assessed and managed in older patients who were admitted to geriatric units.</td>
<td>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.</td>
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<tr>
<td>Marengoni et al (2015)</td>
<td>Italy</td>
<td>Retrospective Database Analysis</td>
<td>1,332 patients aged over 65 enrolled in 2008; 1,380 in 2010; and 1,340 in 2012</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Morrison &amp; Siu (2000)</td>
<td>New York, USA</td>
<td>Questionnaire Study &amp; Medical Record Review</td>
<td>59 cognitively intact elderly patients with hip fracture and 38 patients with hip fracture and</td>
<td>To examine the treatment of pain following hip fracture in cognitively intact patients and those with advanced dementia.</td>
<td>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...</td>
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<td>Study</td>
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<td>Participants</td>
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<tr>
<td>Niemi-Murola et al (2007)\textsuperscript{25}</td>
<td>Helsinki, Finland</td>
<td>Questionnaire Study</td>
<td>430 medical students (out of 680 OR response rate 63%)</td>
<td>To construct an instrument and to assess the effect of pain education on medical students’ attitudes at the University of Helsinki.</td>
<td>Final year students felt significantly more often anxious about seeing a chronic pain patient ($p &lt; 0.05$) compared with the first year students. Female students were more anxious about seeing a patient suffering from chronic pain ($p &lt; 0.05$) and they were less confident of their ability to treat chronic pain patients in primary care ($p &lt; 0.001$) 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.</td>
</tr>
<tr>
<td>Petre et al (2012)\textsuperscript{26}</td>
<td>Baltimore, USA</td>
<td>Retrospective Database Analysis</td>
<td>352 patients selected for elective hip or knee replacement (2005-8)</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Pittrow et al (2003)\textsuperscript{27}</td>
<td>Berlin, Germany</td>
<td>Retrospective Database Analysis; Longitudinal Study</td>
<td>996 nursing home residents</td>
<td>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.</td>
<td>There was no difference for opiate prescribing in both groups (nursing home-based physicians versus office-based physicians).</td>
</tr>
<tr>
<td>Ponte &amp; Johnson-Tribino (2005)\textsuperscript{28}</td>
<td>West Virginia, USA</td>
<td>Survey of family physicians</td>
<td>185 useable surveys out of 537 OR response rate 34.5%</td>
<td>To determine physicians’ attitudes, beliefs and knowledge regarding evaluation and treatment of pain.</td>
<td>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.</td>
</tr>
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</table>
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**.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Study Design</th>
<th>Sample Size</th>
<th>Objective</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Raji et al (2017)</td>
<td>Texas, USA</td>
<td>Retrospective Database Analysis</td>
<td>Sample size not specified; medication claims 2007-2012 for people aged 66 or older</td>
<td>To examine the longitudinal association of laws regulating pain clinics on opioid-prescribing and opioid-related toxicity among Texas Medicare recipients.</td>
<td>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 <strong>new laws</strong> had no effect on the percentages of patients who filed any opioid prescription or were hospitalized for potential opioid toxicity.</td>
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<td>Rognstad et al (2013)</td>
<td>Norway</td>
<td>Cluster Randomised Controlled Trial of continuing medical education (CME) groups</td>
<td>Intervention data for 41 CMEs (250 GPs), control data for 39 CMEs (199 GPs)</td>
<td>To study the effects of a multifaceted educational intervention on GPs’ Potentially Inappropriate Prescriptions for older patients.</td>
<td>29% decrease in Potentially Inappropriate Prescriptions of opioids and spasmolytics for intervention group where GPs received additional <strong>education</strong>.</td>
</tr>
<tr>
<td>Sandvik et al (2016)</td>
<td>Norway, nursing homes</td>
<td>Secondary data analysis of three cross-sectional studies from 2000, 2004 and 2011, and an RCT in 2009</td>
<td>2000 (n = 1,926), 2004 (n = 1,163) and 2011 (n = 1,858) and an RCT in 2009 (n = 850)</td>
<td>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.</td>
<td>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 <strong>dementia</strong> received fewer analgesics compared with patients without dementia.</td>
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<td>Study</td>
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<tr>
<td>Shah et al (2012)&lt;sup&gt;12&lt;/sup&gt;</td>
<td>UK, nursing homes</td>
<td>Retrospective Database Analysis</td>
<td>10,387 residents in care homes &amp; 403,259 older people in the community</td>
<td>To compare prescribing quality in care homes in England and Wales with the community and with USA nursing homes.</td>
<td>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.</td>
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<tr>
<td>Shega et al (2006)&lt;sup&gt;13&lt;/sup&gt;</td>
<td>Chicago, USA</td>
<td>Cross-sectional analysis of an observational cohort study</td>
<td>115 patient–carer dyads of mostly African American community-dwelling people with dementia and their carers.</td>
<td>To explore the pharmacological treatment of non-cancer pain in persons with dementia and identify predictors associated with insufficient analgesia.</td>
<td>No patients had been prescribed a Class III (strong opioid) drug. Insufficient analgesia was associated with greater age, Mini-Mental State Examination score of &lt;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.</td>
</tr>
<tr>
<td>Shugarman et al (2010)&lt;sup&gt;14&lt;/sup&gt;</td>
<td>Virginia, USA</td>
<td>Clinical vignette review of elderly frail patient and follow-on survey.</td>
<td>Of 208 (74%) responding practitioners, 189 with prescribing responsibilities.</td>
<td>To evaluate factors associated with practitioners’ intention to address diverse aspects of pain.</td>
<td>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.</td>
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<tr>
<td>Solomon et al (2006)&lt;sup&gt;15&lt;/sup&gt;</td>
<td>Pennsylvania, USA</td>
<td>Retrospective Database Analysis of healthcare beneficiaries (1996-2001)</td>
<td>18,099 elderly patients likely to have chronic pain due to osteoarthritis, rheumatoid arthritis or low back pain</td>
<td>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.</td>
<td>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</td>
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</table>
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.

<table>
<thead>
<tr>
<th>Study</th>
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<th>Study Design</th>
<th>Sample Size</th>
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<tbody>
<tr>
<td>Spitz et al (2011)</td>
<td>New York, USA</td>
<td>Focus Group Study</td>
<td>23 physicians &amp; 3 nurse practitioners</td>
<td>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.</td>
<td>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).</td>
</tr>
<tr>
<td>Veal et al (2014)</td>
<td>Australia, care facilities</td>
<td>Retrospective Database Analysis</td>
<td>7,309 medicine reviews</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>Wes &amp; Dart (2016)</td>
<td>USA, poison centres</td>
<td>Retrospective Database Analysis</td>
<td>57,681 misuse cases reported to participating US poison centres</td>
<td>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).</td>
<td>Population rates of misuse of prescription opioids were higher for older adults than for younger adults, and this disparity increased over time.</td>
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<tr>
<td>Won et al (2004)</td>
<td>USA (13 states)</td>
<td>Retrospective Database Analysis</td>
<td>21,380 nursing home residents aged 65 and older with persistent pain</td>
<td>To determine the prevalence of analgesic use, their prescribing patterns, and associations with particular diagnoses and medications in patients with persistent pain.</td>
<td>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.</td>
</tr>
<tr>
<td>Gold (2017)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>Opinion piece on opioid prescribing for older people amidst a ‘national opioid epidemic’.</td>
<td>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.</td>
</tr>
<tr>
<td>Kress et al (2014)</td>
<td>Europe &amp; USA</td>
<td>N/A</td>
<td>N/A</td>
<td>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.</td>
<td>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.</td>
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<tr>
<td>Morone &amp; Weiner (2013)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>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.</td>
<td></td>
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<tr>
<td>Podichetty et al (2003)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>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.</td>
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<tr>
<td>Prostran et al (2016)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>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).</td>
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</tr>
<tr>
<td>Robson-Lane &amp; Booker (2017)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Schofield (2014)</td>
<td>UK</td>
<td>N/A</td>
<td>N/A</td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
| Shega et al (2007) | 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
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.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Methodology</th>
<th>Study Design</th>
<th>Purpose</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith &amp; Bruckenthal (2010)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>To synthesise and discuss implications of opioid analgesia for medically complicated patients.</td>
<td>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.</td>
</tr>
<tr>
<td>Van Ojik et al (2012)</td>
<td>Netherlands</td>
<td>Literature search</td>
<td>N/A</td>
<td>To determine the appropriateness of the strong-acting opioids buprenorphine, fentanyl, hydromorphone, morphine, oxycodone and tapentadol in elderly patients</td>
<td>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.</td>
</tr>
<tr>
<td>Best Practice Advocacy Centre New Zealand (2008)</td>
<td>New Zealand</td>
<td>N/A</td>
<td>N/A</td>
<td>To outline several key principles that should be considered when prescribing pain relief for older people.</td>
<td>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.</td>
</tr>
<tr>
<td>Canadian Institute for Health</td>
<td>Canada</td>
<td>Retrospective Database Analysis</td>
<td>Not specified</td>
<td>To synthesize and explain Pan-Canadian trends in the prescribing of opioids, 2012 to 2016</td>
<td>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.</td>
</tr>
<tr>
<td>Reference</td>
<td>Country</td>
<td>Year</td>
<td>Study Objective</td>
<td>Findings</td>
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<tr>
<td>Information (2017)</td>
<td>USA</td>
<td>N/A</td>
<td>N/A</td>
<td>Most often, about 1 in 8 of those prescribed an opioid were prescribed a strong one on a long-term basis.</td>
<td></td>
</tr>
<tr>
<td>Cook (2016)</td>
<td>USA</td>
<td>N/A</td>
<td>To discuss the effects of policy change on opioid use.</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Drugs &amp; Therapy Perspectives (2006)</td>
<td>USA</td>
<td>N/A</td>
<td>To discuss ways to address opioid under-usage for chronic pain in elderly patients</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Express Scripts Lab (2014)</td>
<td>USA</td>
<td>N/A</td>
<td>To explore opioid use among older adults (65+) in the USA and to identify ways to improve safe prescribing.</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Lynch (2011)</td>
<td>USA</td>
<td>N/A</td>
<td>To provide guidelines on management of drug-drug interactions</td>
<td>Multiple medical conditions, polypharmacy, communication problems, poor adherence,</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Year</th>
<th>Year</th>
<th>Title</th>
<th>Summary</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>Peschin &amp; Bens</td>
<td>USA</td>
<td>2016</td>
<td>N/A</td>
<td>interaction in older adults receiving opioid treatment</td>
<td>inappropriate prescription and poor continuity of care may impact opioid therapy.</td>
<td>1</td>
</tr>
<tr>
<td>Siciliano</td>
<td>USA</td>
<td>2006</td>
<td>N/A</td>
<td>To comment on the 2016 draft Centres for Disease Control and Prevention Guideline for Prescribing Opioids for Chronic Pain.</td>
<td>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.</td>
<td>1</td>
</tr>
</tbody>
</table>

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.
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 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’**

**Patient Factors**
- Age
- Gender
- Race
- Cognitive function / dementia
- Learning Difficulties
- Education
- Type of pain
- Alcohol / substance use
- Functional status
- Prior diagnosis of psychiatric illness
- Prior use of psychiatric medication
- Patient reluctance to take opioids
- Joint pain
- Location (community vs long-term care)
- Polypharmacy (use of multiple medications)
- Presence of arthritis
- History of fractures
- History of cancer
- History of congestive heart failure
- History of osteoporosis
- Use of sedatives

**Prescriber Factors**
- Age
- Perception of pain as normal with ageing
- Subjective judgements of ‘tolerable’ pain
- Education on pain and prescribing
- Failure to assess pain
- Uniformity and quickness of pain assessment
- Attitudes on opioid prescribing
- Fear of causing harm / concerns of opioid abuse or dependence
- Not considering the initial use of weaker opioids
- Greater confidence in pain management skills
- Greater number of visits to the same patient
- Physician type (e.g. attending, primary care)
- Familiarity with research confirming treatment benefits

**Policy / System Factors**
- Administrative burden of prescribing
- Availability of validated tools assessing opioid dosing for comorbidities
- New laws / policy of prescribing
- Funding eligibility for care
### 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
- Musculoskeletal 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 Findings
- **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 lower prescribing due to decreased prescribing 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 GP 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. Much more is known about what the influencing factors are, rather than why or how they operate. For example, while research shows that 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, or it may stem from ageism and a belief that pain is a natural part of ageing. 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


53. Drugs & Therapy Perspectives (2006). Appropriate prescribing and education can help address opioid underuse for chronic pain in elderly patients. Drugs & Therapy Perspectives, 22, 7-11.
# Appendix A
## DATA EXTRACTION TOOL

<table>
<thead>
<tr>
<th>Subheading</th>
<th>For completion by reviewer(s)</th>
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</table>
| **Full citation** | 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: ) |
| **Type of paper** | What is the research design or review style [classify as the main pitch of the paper] |
| **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: ) |
<p>| <strong>Area and setting</strong> | What is the country and setting of the study? |
| <strong>Timing</strong> | Over what period did the data collection take place? |</p>
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<td>What are the factors explaining opioid prescribing?</td>
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<tr>
<td></td>
<td>What is the overall view on opioid prescribing for older adults? [over-prescription, under-prescription, mixed, or specific trends]</td>
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<th>Inclusion</th>
<th>Should this study be included in the final review?</th>
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</tr>
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| Main Point | |
|------------|
Appendix B

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

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

Background

- Chronic pain occurs in 45-85% of older people; pain treatment and management is important to allow the enjoyment of a good quality of life and an active role in both family and society where possible.
- Whole persons, not just pain in older people, is also under-recognized and undertreated.
- Inappropriate prescribing of opioids is prevalent:
  - Inhibition of thinking opioids without first treating pain with simple analgesics or weak opioids was found in one third of community-dwelling older outpatients.
  - Strong opioids prescribing is not only only prevalent in older patients, but also increasing at the fastest rate in this age group.
  - Part, not at all important in the Geriatric’s Clinical such as falls, memory problems and incontinence can be exacerbated by opioid.
- While "potentially inappropriate opioid prescribing" to manage pain in older people is common, 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 under-explored 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 more tendentious in opioid prescribing for older people.
  - Objective 3: Chart knowledge gaps on the basis to propose areas where further research is of greatest priority.

Preliminary Findings

- Some aspects affecting opioid prescribing for older people include:
  - Age
  - Gender
  - Race
  - Living arrangement
  - Cognitive status
  - However, little is known on how prescribing knowledge is affected in prescribing for older people.

Focus of the Literature Search

- The focus of the literature search is on:
  - Research on opioid use for pain management
  - Research on opioid prescribing
  - Research on medications prescribing for older people
  - Research on pain management for older people

Screening Flowchart

- The findings from the current project will be used to:
  - Design a qualitative study investigating GP prescribing and perceptions around opioid prescribing in older people.
  - Develop an application for healthcare workers (e.g. RCGP) to support the study.
  - The study will be conducted with support from the NHMRC Research

What’s Next?

References