



# Analgesic Self-medication Among Patients With Chronic Musculoskeletal Pain in a South African Chiropractic Teaching Clinic: A Cross-sectional Study

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## ABSTRACT

**Objectives:** The purpose of this study was to identify the prevalence of chronic musculoskeletal pain (CMSP) and analgesic self-medication. The knowledge and practices of those who self-medicate with analgesics and factors influencing this was also ascertained.

**Methods:** This study was a quantitative, descriptive cross-sectional study. A survey was conducted amongst 302 participants with musculoskeletal pain (MSP) attending a chiropractic clinic within a South African tertiary university from July to September 2022. The analysis of analgesic self-medication was limited to participants who reported having CMSP. Data were analyzed using appropriate statistical software and methods, utilizing Chi-square, and nonparametric tests.

**Results:** There was a high prevalence of analgesic self-medication with 80% of respondents reporting self-medicating with analgesics to manage their CMSP, and a point prevalence of 57%. More females (86%) than males (69%) self-medicated with analgesics. Participants between 35 and 44 years were statistically more likely to self-medicate with analgesics ( $P = .048$ ). The majority (96%) sourced their analgesics from a pharmacy without a prescription. It was found that the most frequently used analgesics were nonsteroidal anti-inflammatory drugs (NSAIDs) (70%) followed by paracetamol (58%) and combination analgesics (54%). A significant number of participants (55%) utilizing public health care services used combination analgesics obtained without a prescription compared to 34% of analgesic users that utilized private health care ( $P < .030$ ).

**Conclusion:** This study showed a high prevalence of self-medication with analgesics, particularly NSAIDs and paracetamol, in participants with CMSP. These findings can guide chiropractors in patient education, reducing self-medication risks and complications. (J Chiropr Med 2024;23;1-12)

**Key Indexing Terms:** *Self-medication; Analgesics; Chronic pain; Chronic musculoskeletal pain; Prevalence; Chiropractic*

## INTRODUCTION

Chronic pain is a major public health concern globally<sup>1-3</sup> with chronic musculoskeletal pain (CMSP) being the greatest contributor to chronic pain conditions.<sup>1</sup> CMSP results in decreased quality of life, affects normal daily activities, loss of productivity, increased work absenteeism, and increased health care expenses.<sup>3-5</sup> In South Africa (SA), CMSP contributes to years lived with disability, with low back pain and neck pain being the leading cause.<sup>6</sup> Due to the burden of many diseases in SA, health-care resources are prioritized accordingly, leaving minimal resources available to manage and prevent CMSP.<sup>7</sup>

Recommendations for the management of CMSP include exercise and the use of analgesics, such as non-steroidal anti-inflammatory drugs (NSAIDs), or more potent analgesics including opioids.<sup>8</sup> Amongst those with CMSP,

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it is common to self-medicate with analgesics.<sup>5</sup> In our study, we use the term self-medication to mean the patient obtaining and taking medication without the supervision of a health-care professional. Self-medication helps patients in managing symptoms through easier medication access, leveraging past treatment experience, and alleviating financial constraints that deter visits to primary physicians, particularly in developing countries.<sup>9</sup>

The concern with self-medicating with analgesics is the potential for misuse.<sup>10</sup> The misuse and dependency of analgesics constitute a high international public health problem<sup>11</sup> and includes extended use of the drug past the recommended duration, increased dosages, and use for incorrect indications.<sup>10</sup> Self-medication with analgesics can cause harm to the patient, not only due to misuse but also causing a delay in diagnosis by masking the pain and symptoms of a more sinister underlying problem.<sup>12</sup> NSAIDs, available over-the-counter (OTC) and by prescription for pain relief, pose risks when used unsupervised. Excessive doses or combining NSAIDs can lead to gastrointestinal, kidney, and cardiac issues.<sup>13</sup> Paracetamol, a common first-line analgesic, may harm the liver in high doses. Combination analgesics, which may contain paracetamol, aspirin, or NSAIDs with codeine, a weak opioid, for added relief may lead to misuse, with risks of dependence and respiratory depression.<sup>14</sup> Healthcare practitioners should take the time to inform or guide patients to mitigate the risks of overuse and misuse of medications and to avoid dependence on potentially addictive medication."

Research is needed to quantify the scale of misuse as this information is currently lacking.<sup>15</sup> Furthermore, there is limited research conducted in SA with regards to the prevalence of self-medication with analgesics among patients with CMSP, especially within a chiropractic clinic setting, where treatment of CMSP consumes a large portion of primary care.<sup>16</sup> Chiropractic care is deemed to be a cost-effective addition to mainstream medical care for MSP. A study in the United States found high overall satisfaction with chiropractic care with many stating that it is their first choice for their healthcare needs.<sup>17</sup>

The purpose of this study was to identify the prevalence of both CMSP and self-medication with analgesics, the knowledge and practices of those who self-medicate with analgesics and the factors influencing this among patients with CMSP attending a chiropractic clinic within a tertiary university in KwaZulu-Natal, SA.

## METHODS

This study was a quantitative, descriptive cross-sectional study. A survey was conducted by means of a validated questionnaire. The researchers adapted the questionnaire for the South African context, with permission from those who used combined questionnaires from 2 ongoing population-based surveys in Norway: Tromso 5 (2001-2002) and Tromso 6 (2007-2008). These surveys were part of the

Tromso study initiated in 1974 to combat high cardiovascular disease mortality in Norway.<sup>18,19</sup> The questionnaire was available both in English and isiZulu, the latter being the predominant language amongst the largest population group in KwaZulu-Natal. The questionnaire was validated by an expert panel and tested for reliability by piloting it prior to commencing the study. Participants of the pilot study were excluded from the main study. The [supplemental file](#) shows an abridged version of the questionnaire reflecting the sections, questions and response options. The STROBE guideline was used in compilation of the report.<sup>20</sup>

## Ethics

Permission to conduct this study was obtained from the Institutional Research Ethics Committee (Ethical clearance number IREC099/22).

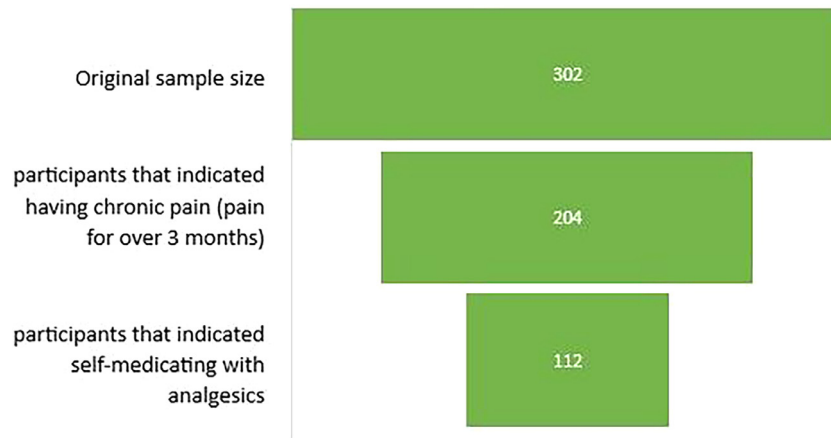
## Patient Recruitment

Purposive sampling was employed to recruit all individuals with MSP presenting at the Durban University of Technology Chiropractic Day Clinic (DUT CDC) from July to September 2022. The sample size calculation was done in consultation with a biostatistician and using the Raosoft sample size calculator. Using a 95% confidence level, 5% margin of error and a population size of 1368 (determined from patient numbers at DUT CDC in 2019), a sample size of 301 was determined.

All patients over 18 years who attended the clinic for treatment of MSP were invited to participate in the study. This accounted for patients' initial difficulty in distinguishing between chronic and acute pain, ultimately determined through questionnaire questions. Of the 302 that attempted the questionnaire, 204 had CMSP (MSP > 3 months). Of these, 112 indicated self-medicating with analgesics and completed the full questionnaire. A 100% response rate was achieved. [Figure 1](#) reflects these numbers.

Those who only completed a portion of the questionnaire had either acute pain, no pain (receiving rehabilitation or maintenance treatment) or were not self-medicating. Participants were notified that their participation is voluntary and confidentiality will be maintained.

All senior chiropractic students treating patients at the clinic were involved in recruiting participants and were informed about the study via verbal communication and e-mail. Participants were asked to complete the questionnaire and consent form after their consultation, in private, without the senior chiropractic student present. The completed forms were placed in envelopes, and handed to the treating student who placed them in the patients' file. The envelopes were later secured in a sealed box by the clinic receptionist, who had signed a confidentiality agreement. The documents were coded and tracked, with no personal identity information required. All boxes were unsealed for data capture.



**Fig. 1.** Total sample distilling down to actual sample size used for data analysis.

### Statistical Analyses

The collected data were captured on Excel and transferred to IBM SPSS version 28 for analysis. Data analysis included descriptive statistics with means and standard deviations. Frequencies were reported in graphs. Chi-square goodness-of-fit-test was used on categorical variables. The null hypothesis assumed equal response distribution and a binomial test, which tests whether a significant proportion of participants select 1 of a possible 2 responses (where  $P < .001$  indicates significance), was conducted.

## RESULTS

### Demographics

Figure 2 represents the demographics of the participants with CMSP. This comprised more females (60.3%) than males (39.7%). Most of the participants were 18–24 years (31.4%;  $n = 64$ ), of the Indian race (34.8%), and had some form of education. Majority reported using private health care facilities (65.2%,  $n = 133$ ).

### Prevalence of CMSP and Self-medicated Analgesics

This study demonstrated a CMSP prevalence of 67.5% ( $n = 204$ ), where 63.7% ( $n = 130$ ) experienced intermittent pain and majority (58.9%,  $n = 116$ ) had a moderate pain intensity. Many participants (61%) reported not being able to perform normal daily activities and 60.8% ( $n = 121$ ) missed work or had previously taken leave due to their CMSP.

The percentage of participants currently self-medicating (57.4%,  $n = 112$ ) or having previously self-medicated (79.8%,  $n = 158$ ) with analgesics was significantly greater than those who did not previously self-medicate (20.2%,  $n = 40$ ) or were not currently self-medicating (42.6%,  $n = 83$ ) to manage their CMSP ( $P < .001$ ).

The Chi-square goodness-of-fit-test, determined that a significant number of participants (39.1%) only sought chiropractic treatment for their CMSP after 1 year of self-medicating with analgesics ( $P < .001$ ).

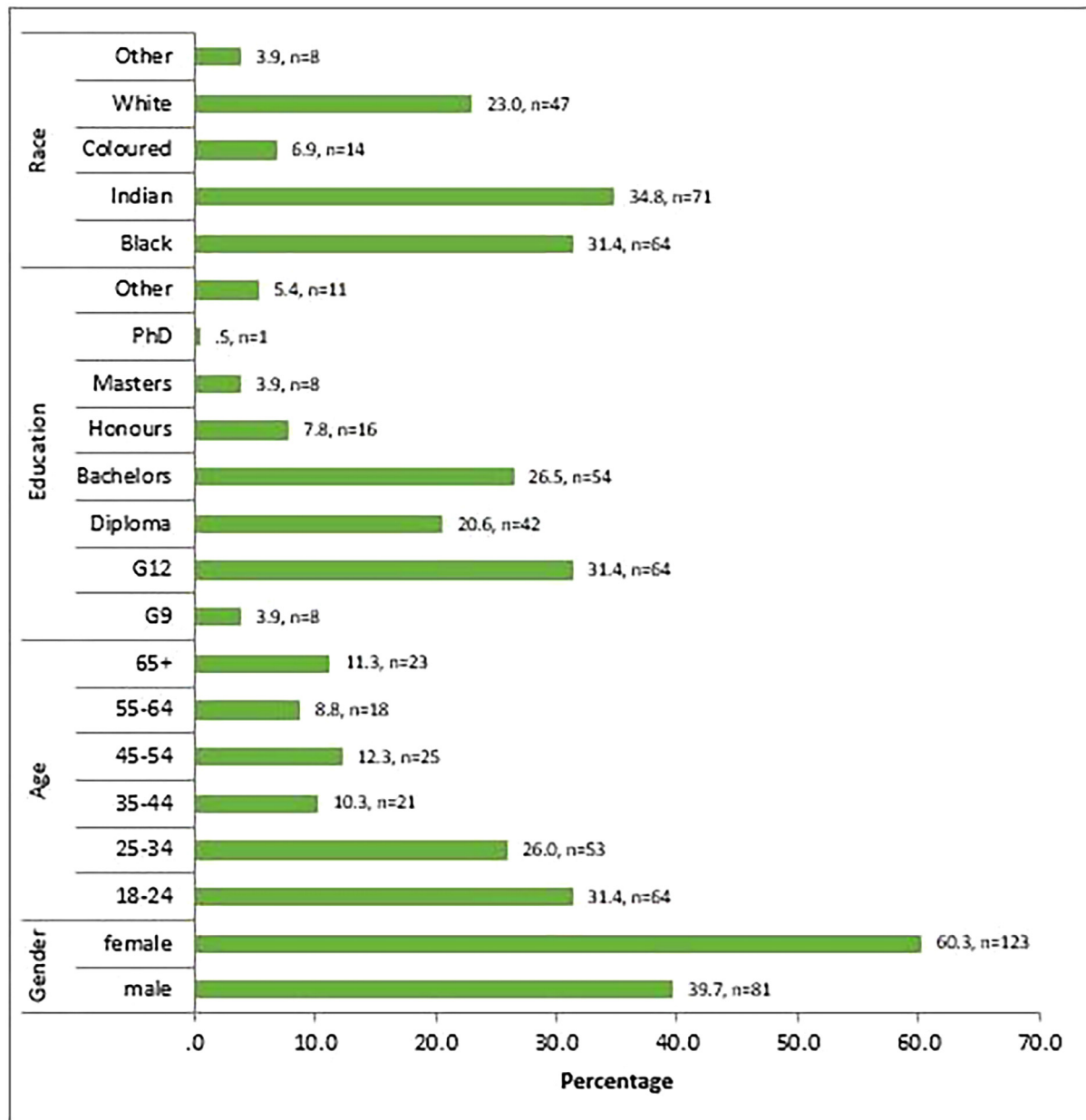
### Sources and Types of Self-medicated Analgesics

When asked about where they acquired their analgesics, a substantial number of participants (95.5%,  $n = 106$ ) indicated that they obtained analgesics from the pharmacy without prescription ( $P < .001$ ) and 34.2% ( $n = 38$ ) indicated that they used analgesics previously prescribed by their doctor ( $p < .001$ ). Others (35.1%,  $n = 39$ ) reported obtaining analgesics from family and friends ( $P < .002$ ). Figure 3 reflects where participants obtained their analgesics. The percentage does not equate to 100% as some participants obtained their medication from multiple sources.

Most participants (70.3%,  $n = 78$ ) reported that they self-medicated with NSAIDs. Participants did not indicate which specific NSAID they used as the questionnaire only provided examples. More than half (57.7%,  $n = 64$ ) reported self-medicating with paracetamol. Self-medication with combination analgesics which require a prescription but was obtained without a prescription was reported by 54.1% ( $n = 60$ ) of participants and self-medication with combination analgesics which can be obtained without a prescription was reported by 41.1% ( $n = 46$ ) of participants. Aspirin self-medication was reported by 15.3% ( $n = 17$ ). Figure 4 reflects these results.

While the data revealed that more participants used more than 1 analgesic simultaneously (57.7%,  $n = 64$ ), it was not statistically significant ( $P = .128$ ).

A substantial number of participants who use public health care services were also using combination analgesics (55%,  $n = 22$ ), compared to only 33.8% ( $n = 24$ ) of participants who use private health care services ( $P = .030$ ).



**Fig. 2.** Demographics of the study population ( $n = 204$ ).

### Self-medicated Analgesics and Directions Followed

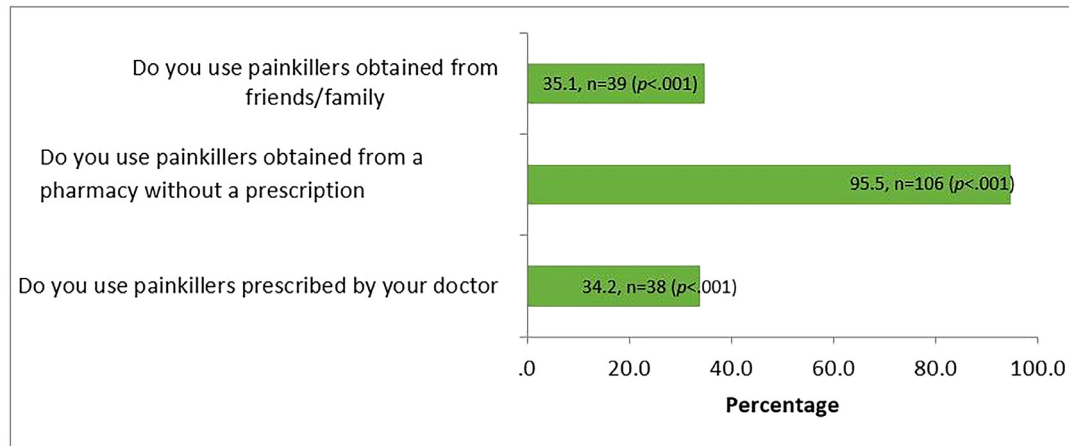
As reflected in Figure 5, participants reported various directions followed when self-medicating, with percentages not totaling 100% as participants followed multiple directions.

There were no statistically significant differences with regards to how often participants used analgesics: 30.6% ( $n = 34$ ) used analgesics less than every week, 42.3% ( $n = 47$ ) used analgesics every week but not daily and 27% ( $n = 30$ ) of participants used analgesics daily. In terms of

the daily frequency of dosing, there was a significant difference noted with more participants using it twice daily (46.7%,  $n = 14$ ) and once daily (33.3%,  $n = 10$ ) compared to using them 3 (16.7%,  $n = 5$ ) to 4 (3.3%,  $n = 1$ ) times daily ( $P < .005$ ).

### Influence of Demographics on Analgesic Use

As shown in Figure 6, the participant's sex has shown to have an influence on self-medicated analgesic use. It was

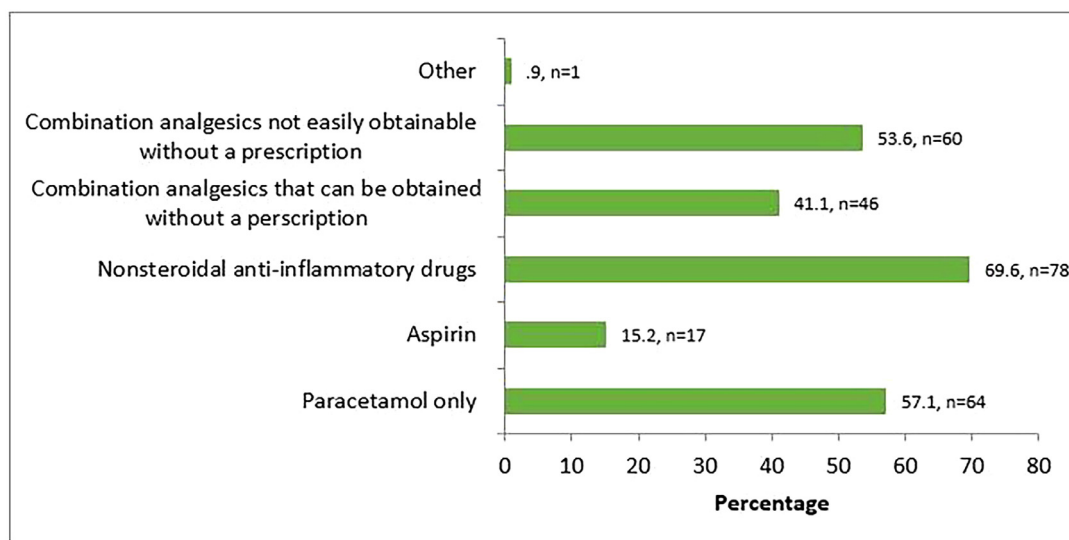


**Fig. 3.** The sources where participants obtained their analgesics ( $n = 112$ ).

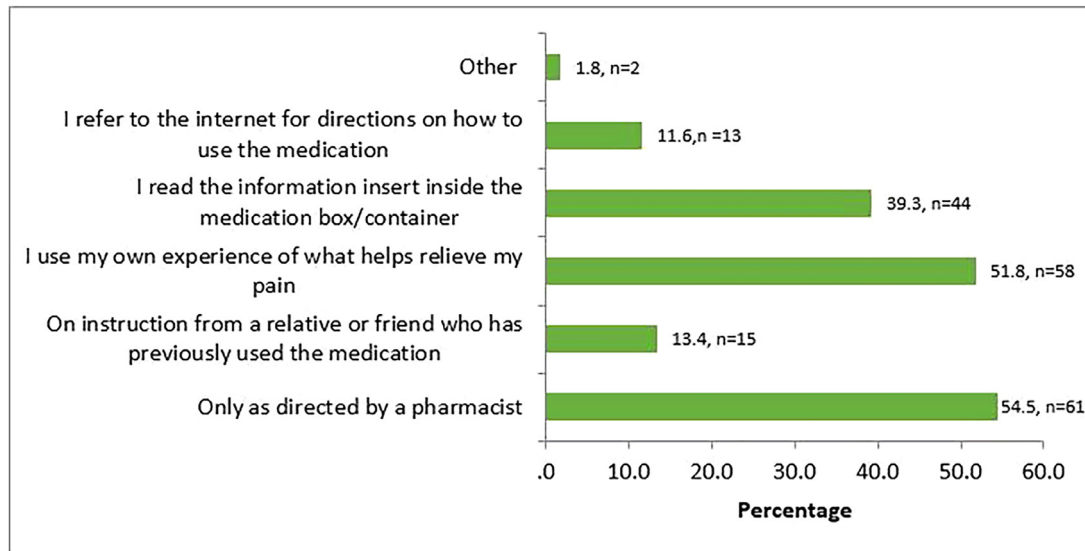
found that there was a significantly larger number of females (86.2%,  $n = 119$ ) who used self-medicated with analgesics compared to males (69.1%,  $n = 76$ ) ( $P = .001$ ). The age group 35-44 years was found to be statistically more likely to self-medicate with analgesics (88.9%) compared to other age categories ( $P = .048$ ). Race was not a significant factor in terms of self-medication with analgesics, however, 29.1% ( $n = 23$ ) of Black participants indicated that they did not self-medicate with analgesics ( $P = .43$ ) and a significant number of participants (44%,  $n = 4$ ) who indicated "Other," also did not self-medicate with analgesics ( $P = .043$ ). There was also no significant finding between the level of education and self-medicated analgesic use.

## DISCUSSION

This study demonstrated a high prevalence of both, CMSP and analgesic self-medication amongst patients with CMSP. It is noteworthy that the majority of participants with CMSP were 18-24 years old, likely due to the DUT CDC's on-campus location, attracting a significant student population. Additionally, the literature has shown a rising trend of chronic pain among young and emerging adults.<sup>21,22</sup> Also noted, was that 80% of participants with CMSP had self-medicated with analgesics previously to manage their CMSP, with a point prevalence of 57%. The literature presented a variety of reports on self-medication with analgesics, with prevalence ranges from 20% to 80% globally.<sup>11,14,23-26</sup> Our results are comparable to previous Swedish (58.2%) and Norwegian



**Fig. 4.** Commonly used self-medicated analgesics ( $n = 111$ ).

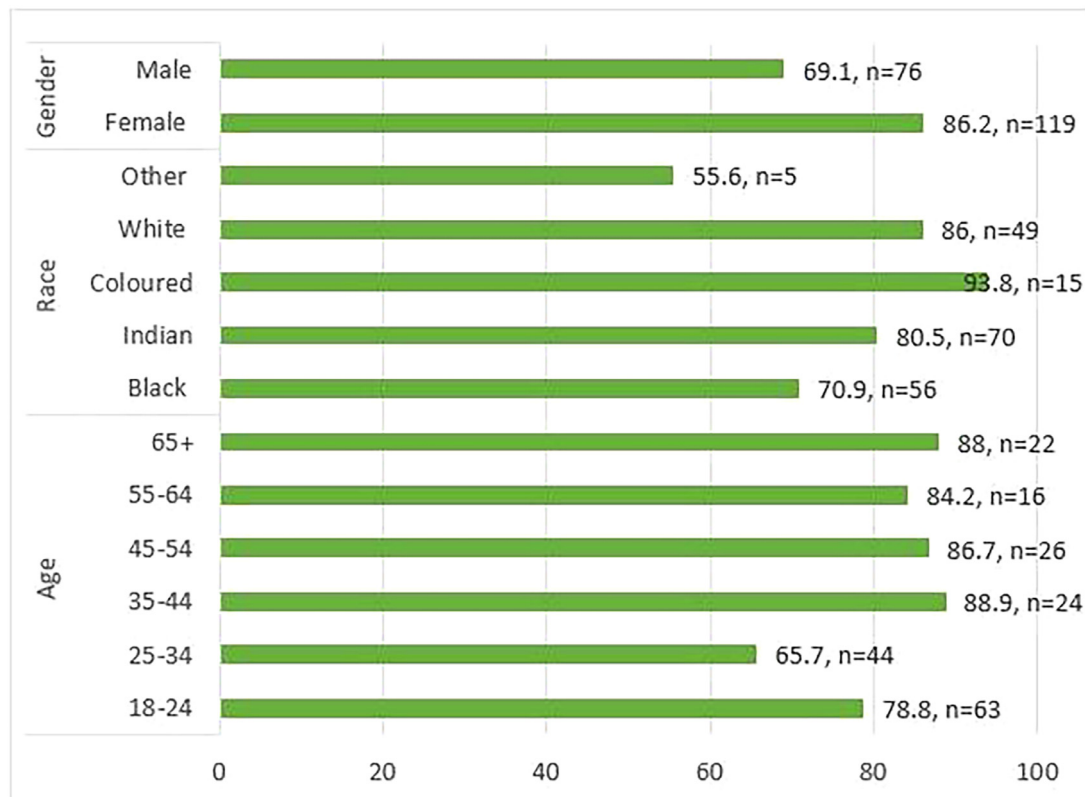


**Fig. 5.** The directions participants followed when self-medicating with analgesics ( $n = 112$ ).

(59.6%) studies that investigated the prevalence of OTC analgesic users with chronic pain.<sup>18,27</sup> The prevalence of self-medicating with analgesics was reported to increase with increased pain intensity, duration, frequency and number of anatomical areas involved.<sup>18</sup> In our study, many patients

experienced moderate pain, often intermittent, which disrupted their daily activities. Additionally, 60.8% reported missing work due to the pain.

The high analgesic use in SA may result from the elevated prevalence of CMSP.<sup>4</sup> In a South African study,



**Fig. 6.** Frequency count of self-medication with analgesics for sex, race and age ( $n = 195$ ).



Ahenkorah et al.<sup>4</sup> found that 90% of those who experience low back pain solely relied on analgesics for treatment. South Africans have relatively easy access to a large number of OTC medications, where schedule 0 medication is available at general stores and supermarkets and schedule 1 and 2 within pharmacies without a prescription, including some codeine containing products, thus increasing analgesic use.<sup>9,28</sup> Most NSAIDs are schedule 3, meaning they require a prescription from a doctor to acquire them. However certain NSAIDs, such as diclofenac and ibuprofen can be prescribed OTC in limited quantities by a pharmacist. These usually do not exceed a maximum period of 5 days.<sup>29</sup>

In a study comparing OTC codeine containing products in SA, United Kingdom (UK), and Ireland, SA had the highest codeine in combination products (20 mg, pack sizes up to 100 tablets), followed by UK (12.8 mg per dose, max pack size 32 tablets), and Ireland (max pack size 24 tablets).<sup>30</sup> Hence South African patients have easier access to effective analgesics for potential relief. This study didn't investigate the driving forces for self-medication with analgesics. However, common reasons in developing countries include easy access to these medications, prior experience in treating their condition, and financial constraints preventing visits to primary care physicians due to long waits at public health facilities.<sup>9</sup> Other studies revealed that limited access to education and preventative strategies in managing CMSP, results in patients seeking relief by self-medicating with analgesics.<sup>6,7</sup>

### Private vs Public Healthcare

Our study showed that the majority (65%,  $n = 133$ ) of participants attending the clinic were using private health care, and thus more likely to have access to medical insurance. Many medical insurances allow benefits that cover the cost of OTC medicines, increasing the ease of access to analgesics.

In this study, a significant finding was that 55% ( $n = 22$ ) of participants utilizing public health care services used nonprescription combination analgesics, compared to 34% ( $n = 24$ ) of analgesic users accessing private health care ( $P < .030$ ). This aligns with a study indicating higher self-medication with OTC analgesics among individuals without medical insurance.<sup>9</sup> Primary healthcare service users maybe more likely to purchase OTC combination analgesics due to their increased analgesic capability when it comes to the treatment of CMSP, compared to that of aspirin or paracetamol alone.<sup>31</sup>

### Demographics and Relationship to Self-medicated Analgesic Use

Most of the participants were females (60.3%,  $n = 123$ ), consistent with other studies demonstrating that females were more likely to seek treatment for their CMSP<sup>32</sup> and higher female participation rates in studies.<sup>9,12,33</sup> This

larger female participant population in pain studies may be influenced by social norms. Women tend to seek treatment more often and express pain openly, while men are taught to be tough and endure pain, which may lead them to avoid seeking healthcare.<sup>34</sup> Furthermore, women, due to experiences like childbirth and menstruation, have a heightened awareness of their bodies, leading to a better recognition of pain compared to men.<sup>34</sup>

It is therefore not unusual that our study revealed that a significant 86% ( $n = 119$ ) females were self-medicating with analgesics, compared to 69% ( $n = 76$ ) males to manage their pain ( $P = .001$ ). Existing literature reports higher OTC analgesic self-medication rates in women compared to men.<sup>18,23,27</sup> This may be because women often experience more chronic pain, higher pain intensity, and reduced functional ability due to pain compared to men.<sup>5,32,33,35-37</sup>

In this study, high self-medication with analgesics was observed in the 35-44 age group (89%,  $n = 24$ ) and those aged 65 and older (88%,  $n = 22$ ). In contrast, a study in Pakistan found that individuals aged 20-25 were more prone to self-medicate with analgesics, as the elderly tended to rely on prescription analgesics for chronic conditions.<sup>38</sup> This study identified a higher prevalence of analgesic use among individuals aged 65 and older compared to a review of 28 studies (20%-60% prevalence).<sup>23</sup> This discrepancy may be attributed to increased co-morbidities among the elderly.<sup>23</sup> Additionally, with SA's rising life expectancy and population, the elderly receive limited healthcare, especially for chronic musculoskeletal conditions,<sup>39</sup> potentially leading to greater reliance on self-medication compared to other countries.

In this study, a statistically significant proportion of Black participants (29.1%,  $n = 23$ ) indicated that they did not self-medicate with analgesics ( $P = .043$ ). In a study in a rural community in SA, comprising of predominantly Black ethnicity, nearly a quarter (24.5%) sought help from traditional healers for their CMSP.<sup>33</sup> In another South African study involving a primary health care clinic serving semi-urban communities with 97% Black participants, it was found that among those who received medication for their low back pain (67%), 77% obtained it from government clinics, and 19% sought treatment from traditional healers. Additionally, a significant majority (72%) taking medication for their lower back pain reported that it did not alleviate their pain.<sup>40</sup> These findings may explain why fewer Black participants resorted to self-administering analgesics.

### Types of Analgesic Used as Self-medication

This study demonstrated a higher usage of NSAIDs as self-medication (70.3%,  $n = 78$ ) compared to studies in Saudi Arabia (49%),<sup>12</sup> UK (49%),<sup>41</sup> Ireland (46%)<sup>41</sup> and Norway (32%).<sup>26</sup> NSAIDs have anti-inflammatory, antipyretic, and analgesic properties which help in managing

muscular pain, arthritic conditions, gout, pyrexia, and dysmenorrhea.<sup>42</sup> South Africans may be more likely to use NSAIDs as they may be more accessible compared to other countries. In SA, NSAIDs, although generally available with a prescription, can be attained in limited quantities OTC.<sup>29</sup> Self-medication with NSAIDs may occur due to leftover medication from previous prescriptions or those obtained from pharmacists who may provide it without a prescription, or from family and friends.<sup>43,44</sup> Prolonged unsupervised NSAID use may lead to nephropathy and gastrointestinal issues like ulcers.<sup>45,46</sup>

Following NSAIDs, more than half of the participants (57.7%) reported using paracetamol. This was comparable to other studies in Iran (60%),<sup>9</sup> UK, and Ireland (52%).<sup>41</sup> Paracetamol is an easily available OTC analgesic and a cost-effective option available from pharmacies, supermarkets, and convenience stores.<sup>28</sup> When taken in correct doses, it is a safe and highly recommended self-medication.<sup>47</sup> However, when taken incorrectly, may lead to accidental poisoning which is a common cause of acute liver failure.<sup>47,48</sup>

In this study, 54.1% (n = 60) of participants stated that they self-medicated with combination analgesics that were not easily obtainable without a prescription. Reports from other studies present lower usage rates. For instance, a study among South African runners found usage between 9% and 43%,<sup>49</sup> and a Norwegian study indicated that 20% of CMSP patients used combination analgesics.<sup>26</sup> The higher usage in this study is linked to both the higher prevalence of CMSP and self-medication with analgesics. Combination analgesics offer enhanced pain relief, due to multiple types of analgesics, yielding synergistic analgesic effects.<sup>31,50</sup> However, prolonged use, past the recommended time period or incorrect doses can increase the risk of side effects, like constipation, gastrointestinal problems, drowsiness, dizziness, nausea, and, more seriously, nephrotoxicity.<sup>31,50,51</sup>

This study revealed that 15.3% (n = 17) of participants were using aspirin for their CMSP, which is higher than the 8.1% reported in a Norwegian study.<sup>52</sup> In the literature there are few reports on the prevalence of aspirin use which may be because aspirin is an NSAID and may have been reported under NSAIDs, or that aspirin is not usually used as an anti-inflammatory due to reduced anti-inflammatory effects at therapeutic doses.<sup>53</sup> This demonstrates that using medication without proper advice could lead to the incorrect choice of analgesic with little effect on CMSP. The use of aspirin may be higher in this study due to it being easily accessible in SA and is available in pharmacies, local supermarkets, and informal stores, making it a popular choice for pain relief among South Africans.<sup>28</sup>

The types of side effects that were most commonly reported in this study were drowsiness and fatigue, nausea, stomach complaints, blurred vision, brain fog, and

euphoria. Chiropractors should know about analgesic side effects. The patients' sensory and cognitive function should be assessed prior to treatment. If side effects are risky, the primary care practitioner should be consulted or non-pharmacological pain management strategies should be employed to reduce need for analgesics. Chiropractic is a non-pharmacological approach to treating chronic pain.<sup>54</sup> Evidence-based guidelines were created to manage CMSP amid the opioid pandemic.<sup>55</sup> A systematic review found an inverse link between chiropractic treatment and opioid prescriptions for spinal pain patients.<sup>56</sup> This offers hope for CMSP patients reliant on medication.

### Sources of Analgesics Used for Self-medication

The majority of participants in this study (94.6%, n = 106) obtained analgesics from a pharmacy without a prescription. This is comparable to a study in Sudan, where the majority (78%) of participants also obtained their self-medication from pharmacies.<sup>44</sup> It is anticipated that here they would receive advice and instructions from a pharmacist likely decreasing the risk of adverse events and increasing the likelihood of the correct analgesic choice. A study in Ghana among people from a rural community reflected a smaller percentage (20%) of participants obtaining their medication from a pharmacy, likely due to limited number of accessible pharmacies in the rural areas thereby causing the majority (32.5%) to obtain medication from kiosks and supermarkets, as well as family and friends (21.3%).<sup>57</sup>

Family and friends had a significant influence ( $P < .002$ ) on participants' choice of medication in this study (34.8%, n = 39) as also reported in 2 other African studies where it was cited as a common source.<sup>44,57</sup> Where cost and accessibility is an issue with medication attainment, family and friends provide ease of access and a saving by using what is available instead of purchasing the correct medication for the condition being treated. This however may increase the chances of side effects and decrease the satisfaction with the medication as it may be used for the incorrect indication.<sup>58</sup>

### Frequency and Dosage of Self-medicated Analgesics

When asked how often they self-medicated with analgesics, 42% (n = 47) reported using analgesics every week but not daily, which is comparable to 47% of participants using OTC analgesics at least once per week in a study in Norway.<sup>52</sup> Almost a third of participants (30.6%, n = 34) said they self-medicated less than every week and 27% (n = 30) reported using analgesics daily which is relatively higher than 2 Norwegian studies that reported daily analgesic use among those with chronic pain to be 12% and 11% respectively.<sup>52,59</sup> The increased number of participants who used analgesics daily in this study may be because of the high prevalence of CMSP reported. This study also



showed that more participants (33.8%,  $n = 69$ ) reported constant pain compared to 20% of participants with constant pain in Norway.<sup>59</sup>

### Patient Satisfaction

Only 10.8% ( $n = 12$ ) of participants reported satisfaction with their self-medicated analgesics, considerably lower than a UK study (45%) and a Ghanaian study (around 60%).<sup>41,57</sup> This high dissatisfaction may stem from incorrect self-diagnoses, leading to inappropriate self-medication.<sup>43,57</sup> Inappropriate choices, like using aspirin for CMSP instead of more suitable NSAIDs or combination analgesics,<sup>31</sup> could contribute to dissatisfaction. Additionally, dissatisfaction may result from participants not following correct usage directions. Approximately half (52.3%,  $n = 58$ ) relied on personal experience and advice from family and friends, increasing the risk of misuse or incorrect dosing during self-medication.

This study revealed that 35.1% ( $n = 39$ ) of participants only sought chiropractic treatment after 1 year of self-medication with analgesics. This extended self-medication duration without other pain relief options could contribute to the high occurrence of side effects and low satisfaction with the analgesics used.

### Limitations

The reliance on participant self-reporting through a questionnaire, rather than more detailed interviews, may affect reliability of this study. Limitations include a small sample size with diverse demographic characteristics differing from the general KwaZulu-Natal population. Moreover, the majority accessing private healthcare services contrasts with the general public relying on primary healthcare, making generalization difficult.

This study did not inquire about specific drugs but instead considered general categories with examples. Participants might have had difficulty selecting a particular group if the examples provided did not include the specific name of analgesic they used or if they were unsure about the type of drug used.

This study was a small-scale study due to the limited final sample size, and thus, it is able to offer insights and estimations concerning prevalence of self-medication with analgesics, rather than definitive inferences or conclusions.

### FUTURE STUDIES

In future studies, larger sample sizes should be considered for improved generalizability. Incorporating qualitative interviews could enable more comprehensive analyses of analgesic types, reasons, and usage patterns, offering a

deeper understanding of analgesic use in individuals with CMSP.

Future studies should incorporate questions about specific NSAIDs used, including dosages and strengths. This variability would impact the outcomes and severity of adverse effects, thereby enhancing insight into the consequences of misuse and overuse.

Furthermore, given the high prevalence of analgesic self-medication among CMSP patients who seek chiropractic care and the potential role of chiropractors as educators and advisors on safe analgesic use, future research should assess chiropractors' knowledge of analgesics to determine their preparedness for this role.

### CONCLUSION

Insights from this study suggest a high prevalence of CMSP and analgesic self-medication among participants. Diverse patterns of self-medication include frequent use of NSAIDs and paracetamol with varying frequencies and durations. Decision-making was influenced by personal preference and third-party advice, rather than by health literacy or evidence-based choices. Additionally, participants expressed dissatisfaction with self-medication outcomes. These findings can guide chiropractors in patient education, reducing self-medication risks and complications.

### SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at [doi:10.1016/j.jcm.2024.02.002](https://doi.org/10.1016/j.jcm.2024.02.002).

### FUNDING SOURCES AND CONFLICTS OF INTEREST

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No conflicts of interest were reported for this study.

### CONTRIBUTORSHIP INFORMATION

Concept development (provided idea for the research): D.E., Y.V.

Design (planned the methods to generate the results): D.E., Y.V., Y.T.

Supervision (oversight, organization and implementation): Y.T.

Data collection/processing (experiments, organization, or reporting data): D.E.

Analysis/interpretation (analysis, evaluation, presentation of results): D.E., Y.T.

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### Practical Applications

- A significantly larger number of females self-medicating with analgesics compared to males demonstrates that female health and chronic pain in South Africa needs to be addressed.
- A significantly larger number of females self-medicating with analgesics compared to males demonstrates that female health and chronic pain in South Africa needs to be addressed.
- Seeking additional pain relief options such as chiropractic treatment for chronic pain sooner may help reduce reliance on analgesic medications.
- Public health services should consider implementing measures to monitor and regulate access to combination analgesics without prescriptions.

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