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Consultation outcomes for musculoskeletal conditions at two community health centres in Cape Town

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Abstract

Objectives: To compare the proportion of patients with documented diagnoses and management plans when they presented with musculoskeletal complaints at two community health centres (CHCs) using two models of care: one with a rheumatology outreach service and the other with none. Secondly, to describe the profile of patients with rheumatoid arthritis (RA) who attended the CHC with the outreach service.

Design: Cross-sectional.

Setting: Heidelberg Community Health Centre and Vanguard Community Health Centre, Cape Town.

Subjects: A group of 59 patients at each CHC were compared regarding engagement of their musculoskeletal complaints by doctors and clinical nurse practitioners (CNPs). Secondly, 24 RA patients who attended Heideveld CHC were profiled.

Results: A comparison of the “overall engagement” between the two CHCs [risk difference (RD) -0.06, 95% confidence interval (CI): -0.17-0.05, odds ratio (OR) 0.79, 95% CI: 0.51-1.24, chi-square 0.82, p-value 0.36] was not significantly different. Comparison between doctors (RD -0.05, 95% CI: -0.05-0.08, OR 0.80, 95% CI: 0.46-1.40, chi-square 0.41, p-value 0.52) was also not significantly different. The comparison between the CNPs at the two CHCs was statistically significant (RD 0.30, 95% CI: 0.14-0.45, OR 8.37, 95% CI: 1.05-66.60, Fisher’s exact test 0.01), but the CI around OR was large. Patients with RA had a mean age of 60 years, an average of two co-morbidities and an average of three annual clinic visits. Eighty-three per cent resided in the drainage area of the clinic.

Conclusion: There was no significant difference in engagement between the CHCs. The potential that CNPs seemed to show of being positively influenced by the outreach service should be further researched. Patients with RA had co-morbidities that required management at primary healthcare level.

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Introduction

Most primary healthcare (PHC) workers are not skilled in the diagnosis and management of musculoskeletal conditions, despite the fact that they amount to 15% of a general practitioner’s workload.¹ In 1994, participants from different racial backgrounds in a Kaiser Family Foundation household health survey that was conducted across all the provinces in South Africa reported arthritis to be the second highest disease from which they suffered.² The other three top diseases were hypertension, asthma and heart problems. In 1998, when the survey was repeated, arthritis was replaced by diabetes.² Despite this fact, PHC policies and priorities in South Africa focus on promoting quality

management of the other three groups of chronic diseases, largely overlooking musculoskeletal conditions. Of the four conditions, musculoskeletal conditions are the only ones that are not captured in the PHC statistics with regard to the number of clients or patients seen.

Currently, there are only 50 registered specialist rheumatologists in South Africa: approximately one per one million people.³ This is an obvious mismatch when the proportion of patients seen at the different levels of health care is taken into account. In the Western Cape, the proportion is 90:8:2 for primary, secondary and tertiary levels, respectively, according to the Comprehensive Service Plan for Implementation of Health Care, 2010.⁴ This implies

that the majority of patients with musculoskeletal disorders are largely seen by an unskilled workforce. Therefore, it makes sense to work towards shared care for rheumatology among specialists and PHC workers, including clinical nurse practitioners (CNPs). In the book on South African standard treatment guidelines for conditions encountered at primary level of care,⁵ only seven (of 407) pages are dedicated to the common arthritides. Management of soft tissue rheumatism, which accounts for the vast majority of locomotor problems that are seen at primary level, is totally excluded.^{6,7}

At primary level, incorrect rheumatology diagnoses are far more common than those in other disciplines. This is supported by the findings of a study, carried out by Gamez-Nava et al,⁸ in which diagnostic and referral patterns of 347 patients with rheumatic diseases referred to rheumatologists by primary care physicians were assessed. In general, the diagnostic agreement between the two groups of professionals was low. Forty-one per cent of the primary diagnoses were subsequently modified by the rheumatologists. The majority of the patients had soft tissue rheumatism and non-specific pain syndromes. The kappa statistic for rheumatoid arthritis (RA) was 0.53.

On the other hand, special training of other clinicians in rheumatology has yielded positive results. A randomised controlled trial showed that care provided by a trained clinical nurse specialist in an outpatient rheumatology clinic had a similar long-term clinical outcome to that of care given by a specialist, as demonstrated by measurement tools for patients' functional status, quality of life and disease activity.⁹ The improvements were all significant, with a p-value of < 0.05. Another example is that of the Joint Adventures Program.¹⁰ Six hundred and fifty family physicians from across Canada were trained in small groups, using the script concordance methodology. Cases used for training were developed in six areas by experts in rheumatology. Prior to training, a needs assessment was carried out in order to identify one or two suitable cases for training. Post-programme measures of knowledge acquisition and self-assessed changes in practice were significantly improved, with high rates of programme satisfaction. A repeat assessment yielded similar results six months post-programme.

In South Africa, the new Bachelor of Medicine and Bachelor of Surgery (MBChB) curriculum is meant to produce generalists who will know how to recognise and manage and/or refer patients with common medical conditions. (University of Cape Town core competency documents for the curriculum began in 2006). The intention is that this will be in line with the National Plan for Higher Education document released in February 2001.¹¹ In the foreword of this document, the then Minister of Education, Professor

Kader Asmal, wrote: "We must be able to produce graduates with high-quality skills and competencies in all fields".

The hypothesis for this study is that on any clinic day, patients who presented at Heideveld Community Health Centre, where there is an outreach programme for rheumatology, have a higher proportion of both diagnosis or differential diagnoses and management plans documented in their folders, compared to patients who attend Vanguard Community Health Centre where there is no dedicated rheumatology service. The study also describes the demographics of patients with RA who attended Heideveld outreach clinic.

The study should be of interest to policy-makers and teaching hospitals as it will reveal how musculoskeletal conditions are handled at primary care level. It will also contribute towards the World Health Organization goal of raising awareness of the growing burden on society of musculoskeletal disorders, and to improve quality of care to patients with rheumatic disorders, following the declaration of 2001-2010 as the "bone and joint decade".¹²

Materials and methods

The study was conducted at two public sector PHC facilities in the townships of Cape Town. Heideveld Community Health Centre is an eight-hour facility with a Groote Schuur Hospital-supported rheumatology outreach clinic (since 1997). Over the past five years, the service has run on a monthly basis, mainly by the principal investigator of this study, a family physician who has had six months training in rheumatology and who is a member of the South African Rheumatism and Arthritis Association. Vanguard Community Health Centre is a 24-hour facility that offers more PHC packages, including trauma and emergency care, as well as a maternity unit. However, it has no formal rheumatology outreach. It serves the communities of Langa and Bonteheuwel. Both community health centres (CHCs) serve underprivileged communities whose members are unable to afford private health services.

A random sample of 159 patients was selected as participants from each of the two CHCs (Figure 1), using a random numbers table. At each CHC, this number was required to be able to detect a difference in proportion of 10% between patients who received both a documented diagnosis and a management plan (power 80%, α 0.05). The inclusion criteria were patients \geq 18 years who presented with musculoskeletal complaints on the day of recruitment, and who had either been seen by a CNP or a medical doctor between June and August 2011. Patients who were seen by other clinicians, e.g. a physiotherapist, patients who had trauma-related musculoskeletal pain, and/or those whose records showed that they had a history of memory loss, were excluded from the study. Informed consent was

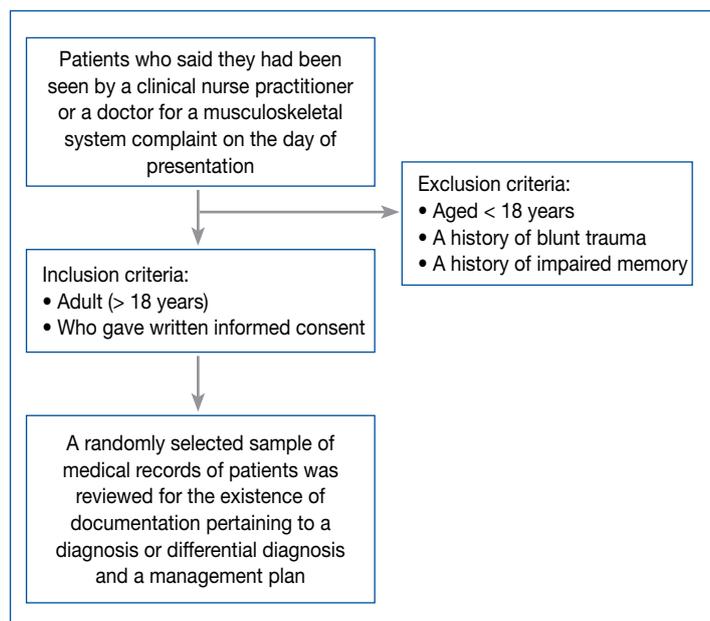


Figure 1: Flow of study participants at Heideveld Community Health Centre and Vanguard Community Health Centre

Table I: Baseline characteristics of patients who complained of musculoskeletal pain and a comparison of the study sites

Variables	Vanguard Community Health Centre	Heideveld Community Health Centre
Patients (n)	159	159
Mean age, years (SD, range)	51.14 (13.96, 20 to 100)	52.36 (11.71, 25 to 100)
Male, n (%)	33 (20.75)	38 (23.90)
Female, n (%)	126 (79.25)	121 (76.10)
Seen by doctors, n (%)	143 (89.94)	78 (49.06)
Seen by clinical nurse practitioners, n (%)	16 (10.06)	81 (50.94)
Staff establishment		
Doctors (n)	8*	3
Clinical nurse practitioners, n	13**	6
Head count average per month (n)	21 000	13 000

SD: standard deviation

*: Three were community service doctors

** : Only two of the clinical nurse practitioners see adults with medical problems, including musculoskeletal conditions

taken by trained nurses in one of the three locally spoken languages. The captured outcome variables were the following: documentation of both a diagnosis or differential diagnoses and a management plan in the medical records. Together, these were referred to as “engagement with a patient”.

The absence of a record of both the diagnosis or differential diagnoses and a management plan on the day of presentation was taken to be “no engagement with a patient”. Also, “no engagement” was presumed if there was no record of the patient’s complaint of a musculoskeletal problem on the day of presentation. The quality of the management plan was not graded. Data collection from the medical records

was carried out by the principal investigator, using a piloted data collection sheet.

Twenty-four randomly selected medical records revealed the number of times a patient with RA presented to a CHC per annum, with 95% CI of a desired precision of two visits about the mean. A systematic random sampling method was used to identify the records from the clinic register. The outcome variables were the following: the mean number of times that patients had presented to the CHC over a year (1 January 2009 to 31 December 2009), and the patients’ sex, age, place of residence and co-morbidities.

A chi-square test was used to determine whether a documented engagement with patients was dependent on the presence of a formal rheumatology clinic. If the assumptions for a chi-square test were not met when the expected cell frequency was < 5 from 2 x 2 tables of dichotomous independent and dependent variables, then Fisher’s exact test was used. A 95% CI estimate of the difference between the two population proportions, equivalent to risk difference (RD) and the odds ratio (OR) were calculated. The demographics of patients with RA were described using means, standard deviation (SD) and ranges.

Ethics approval for the study was obtained from the Stellenbosch University Health Research Ethics Committee (Ref No: N11/03/072) and the Western Cape Province Metro District Health Services Ethics Committee (Ref No: 2011 RP 48). In addition, a waiver of consent to profile RA patients was obtained from both ethics committees. The study was conducted in accordance with the Declaration of Helsinki.

Results

The two groups were similar in terms of the mean age of participants (51.14 and 52.36 years) and the male to female ratio (approximately 1:4) (Table I).

The proportion of patients seen by the different clinicians reflects the status quo of the staff complement in the two CHCs. Adult patients at Heideveld Community Health Centre were mostly seen by CNPs rather than doctors. The opposite was true at Vanguard Community Health Centre.

The number of Heideveld Community Health Centre patients who had a documented diagnosis or differential diagnoses was 77 (49.43%). One hundred and twenty-four had a management plan (77.99%). The corresponding figures for Vanguard Community Health Centre patients were 67 (42.14%) and 138 (86.79%), respectively. Both CHCs demonstrated a tendency to treat patients without making

Table II: Proportion of engagement (documentation of both a diagnosis or differential diagnoses and a management plan)

Variables	Vanguard Community Health Centre, n (%)	Heideveld Community Health Centre, n (%)
Engagement		
Doctors and clinical nurse practitioners combined	73 (45.91)	64 (40.25)
Clinical nurse practitioners	1 (0.63)	29 (18.24)
Doctors	72 (45.28)	35 (22.01)

Table III: Comparisons of engagement between the two community health centres, $\alpha = 0.05$

Variables	Chi-square test (p-value)	Risk difference* (95% CI)	Odds ratio (95% CI)
Overall engagement	0.82 (0.36)	-0.06 (-0.17-0.05)	0.79 (0.51-1.24)
Engagement by clinical nurse practitioners	Fisher's exact test (0.01)	0.30 (0.14-0.45)	8.37 (1.05-66.60)
Engagement by doctors	0.41 (0.52)	-0.05 (-0.19-0.08)	0.8 (0.46-1.40)

CI: confidence interval

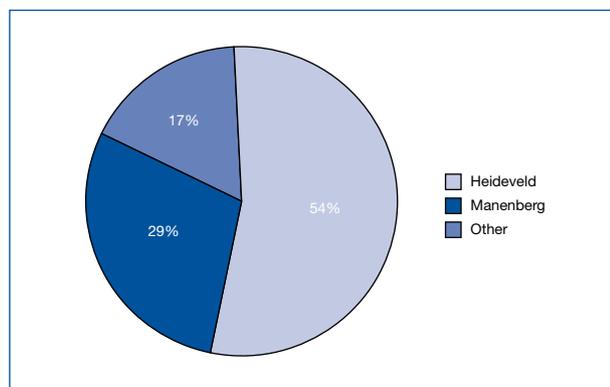
*: Risk difference equivalent to proportional difference

Table IV: Demographics of patients with rheumatoid arthritis at Heideveld Community Health Centre in 2009 (n = 24)

Variables	n (mean, SD)	Range
Age	24 (59.75, 9.94)	41-74
Number of co-morbidities	24 (1.96, 1.43)	0-4
Number of visits per annum	24 (2.8, 1.31)	0-6*
Women's age	22 (61.18, 9.03)	46-74
Men's age	2 (44, 4.24)	41-47

SD: standard deviation

*: There was only one patient who did not attend the clinic in 2009

**Figure 2:** Place of residence of patients with rheumatoid arthritis

or documenting the diagnosis. Overall engagement was similar. It was < 50% for both CHCs (Table II). The CNPs of Heideveld Community Health Centre engaged better than their Vanguard Community Health Centre counterparts (18.24% vs. 0.63%). The performance of the doctors at Vanguard Community Health Centre was better than that of their Heideveld Community Health Centre counterparts [Heideveld Community Health Centre (22.01%) vs. Vanguard Community Health Centre (45.28%)]. Patients who solely presented for a musculoskeletal problem were more inclined to receive engagement.

The two CHCs' clinicians (as a group) and doctors did not perform differently in terms of proportion of engagement and likelihood to engage when they were compared with each other, nor was there statistical evidence of the influence of the outreach clinic at Heideveld Community Health Centre (Table III). However, when the CNPs were compared, the odds of the Heideveld Community Health Centre cohort engaging were 8.37 times greater than those of Vanguard Community Health Centre CNPs. However, the wide margins around the OR (95% CI: 1.05-66.60) brought uncertainty to the significance of the result, despite the proportional difference in engagement which was shown to be 30% in favour of Heideveld Community Health Centre's

CNPs, and a suggestion that this group's engagement was associated with the presence of the outreach clinic (Fisher's exact test 0.01).

The patients with RA (Table IV) had a mean age of 60 years, the average number of clinic visits was 3 (0-6) and the average number of co-morbidities was 2 (0-4). Nineteen patients had hypertension, five had diabetes, three had ischaemic heart disease, three had hypercholesterolaemia, three had gout and one had had a stroke. The patients also had RA associations (one had fibromyalgia syndrome, two had dry eyes, three had secondary osteoarthritis and two had osteoporosis) and complications of treatment (two had gastro-oesophageal reflux disease, one had dyspepsia and one had peptic ulcer disease).

Most patients with RA were from Heideveld Community Health Centre (Figure 2). Heideveld and Manenberg fall under the same subdistrict.

Discussion

The study measured the level of engagement by staff and the demographics of patients with RA at PHC level. Engagement was shown to be < 50%, with no significant difference in overall engagement between the nurse-dominated Heideveld Community Health Centre staff and the doctor-dominated comparator Vanguard staff. This may be because of poor information recording by healthcare workers. A prospective study with a larger sample size proportional to head count may show a difference. As a subgroup, CNPs seemed to engage better with musculoskeletal complaints when there was an outreach rheumatology clinic. A systematic review¹³ has found that CNPs working in primary care provide equivalent care to that of doctors, even though CNPs' consultation times

were significantly longer (weighted mean difference +3.67 minutes) and undertook significantly more investigations.

Specialist outreach services¹⁴ have reportedly led to 9% more patients with breast cancer accessing oncology consultations, with 7% more receiving guideline-consistent care. Specialist outreach services, when compared with usual care for patients with depression or panic disorders,¹⁴ have led to a decline in nonadherence to treatment, fewer patients reporting persisting symptoms, and a smaller number being dissatisfied with overall care. This implies that outreach services at PHC level are still necessary as they are shown to be linked with skills transfer.^{13,14}

In a study by Glazier et al,¹⁵ primary care physicians were assessed on their ability to manage three scenarios pertaining to common musculoskeletal conditions. The findings were that, for the most part, management was in accordance with recommended management strategies. However, concerns were raised about the unnecessary use of diagnostic tests, inappropriate prescribing of nonsteroidal anti-inflammatory drugs and low use of patient-centred options, like exercise, as well as lack of diagnostic suspicion of infectious arthritis. The authors recommended increased exposure to musculoskeletal problems during undergraduate and residency training, and in continuing medical education. The rheumatologists and CHC managers, as signatories of an outreach agreement (promulgated in Circular H1),¹⁶ should ensure that the transfer of skills occurs during outreach.

This study is relevant in primary level settings where the comprehensive management of patients is practised. The literature suggests that there could be an association between RA and metabolic syndrome,¹⁷ and between gout and metabolic syndrome.¹⁸ The Heideveld Community Health Centre cohort of patients with RA required integrated management as they had an average of two comorbidities. Acquisition of rheumatology skills by primary health clinicians would make it convenient for patients to be managed at one site, or referred timeously to specialists.

A major limitation to this study was that the quality of engagement was not assessed. Selection bias was minimised by taking a random sample of participants, and information bias reduced by using a pre-tested data collection form. A possible limitation of the study could have been the small sample size. There was potential performance bias as the principal investigator is one of the service providers at the Heideveld Community Health Centre outreach clinic.

Conclusion

Skills training in rheumatology is required at primary level, particularly for common conditions, including uncomplicated RA. This research was not able to demonstrate that

outreach improved engagement by health carers as a group. However, it highlighted the handling of musculoskeletal conditions at PHC level. Nonetheless, increasing exposure to evidence-based musculoskeletal management during medical training, and in continued medical education, is recommended. Further research on engagement by CNPs using a larger sample size would increase the statistical accuracy of the findings. Further research is required that shows that diagnostic accuracy results in better patient care as a result of specialist outreach.

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