



Research Article

# Bringing Chiropractic to Durri; an Evaluation of Quality of Life and Well-being in a Rural Community before and after Chiropractic Treatment

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## Abstract

**Objective:** To evaluate patient-centred health outcomes of a Chiropractic program established in the Kempsey rural Community in NSW, Australia.

**Scope:** The broader health outcomes of a Chiropractic program were evaluated by validated patient-centred self-report survey tools (Euroqual and MYMOP).

**Methods:** 102 subjects from Booroongen-Djugun aged-care facility and Durri Aboriginal Medical Service participated in this study and of these 13 participated in an interview.

**Results:** The most frequent presentation in the *Kempsey Community Survey of Muscle, Joint and Bone Conditions (KMS)* involved more than one region of the body, and scores indicated that the average duration of presenting problems was between 3 months and 1 year. Scores obtained for each of the 5 domains of the Euroqual demonstrate that the problems that participants in this study identified significantly impacted on their quality of life. The difference in profile scores of the MyMOP from Time 1 to Time 2 indicates that patients had a significant change in their symptomatology due to chiropractic treatment.

**Conclusion:** The findings from this study indicate the need to build a sustainable, ongoing chiropractic service that specifically responds to the needs of the rural Community it serves.

**Keywords:** Chiropractic; Rural Community; Treatment; Musculoskeletal pain

## Introduction

The gap in all health and quality of life outcomes for rural Australians continues to be of great concern with this gap also existing in musculoskeletal disorders [1]. Chronic back pain, for example, is experienced by 12.7% of Australians, with low back

pain (LBP) being the second highest burden of chronic disease [2]. While there are no census data measuring LBP across all geolocations, a study has recorded back pain as 'profoundly disabling' in some Aboriginal and Torres Strait Islander Communities, which were located in rural areas [3]. A further study investigating the prevalence of musculoskeletal pain and disability in the Aboriginal Community in Kempsey (NSW), a coastal rural community, found that Aboriginal and Torres Strait Islander people in this rural area endure high levels of painful and even disabling musculoskeletal

conditions with financial disadvantage, limited geographical access to allied health professionals (such as physiotherapists, chiropractors and osteopaths) and sociocultural barriers identified as contributing to the burden of illness [4].

Previous studies suggest that for people living in disadvantaged communities in Australia, the benefits of providing tactile therapies are broader than purely the symptomatic relief of musculoskeletal pain and disability [4]. One such study which evaluated the impact of a massage therapy program provided in a remote Aboriginal and Torres Strait Islander Community found a number of benefits associated with ‘hands-on’ health care [5]. These benefits included not only symptomatic relief from pain and disability but also positive changes in emotional, psychological, social and cultural dimensions.

“Allied health services underpin the health and wellbeing of our nation. They are the quiet achievers of our health, disability, education, aged care, and social service sectors. Without them, our schools, workplaces, homes and aged -care facilities all struggle to realise their potential, communities suffer and economic developments stalls [6].”

Chiropractors have the potential to increasingly become an important part of primary health care as Chiropractors work within a clinical framework of empowering the individual, carer or the community through education programs and the promotion of self-management of health and well-being [5]. Chiropractors, as most allied health workers do, also have an important role in the prevention and management of many of the conditions and illnesses that disproportionately affect rural Australians. In addition, they have a valuable role in injury prevention as well as health promotion through this potential to improve health outcomes, however this is limited by major gaps in access to chiropractic services in a rural setting.

There are an estimated 300 Aboriginal Medical Services (AMS) in Australia, both in rural and metropolitan areas [7]. These Aboriginal Community Controlled Services are the preferred portals of culturally appropriate health care for Aboriginal Communities, these services do not exclude non-Aboriginal patients who may be connected with their Communities through work, marriage or other cultural ties. Involvement of Chiropractors within these organisations is almost non-existent<sup>4</sup> with the situation being worse in remote communities which suffer increased disadvantage in proportion to their distance [2].

This observational research project was undertaken to evaluate the impact of Chiropractic care and associated health outcomes on the attendees at a rural AMS and a local rural nursing home (Booroongen Djugun) in Kempsey, NSW. This project used the AMS and nursing home for convenience and participants were not limited to Aboriginal and Torres Strait Islander residents.

## **History of the Project**

This initiative originated from a collaborative PhD research project undertaken by Dein Vindigni in 2004 at the end of which, in consultation with the Community, a Chiropractic program was implemented for the Kempsey AMS. Initially, two Chiropractors attended Durri on a fortnightly basis, with this being extended to include the Booroongen Djugun nursing home. At the commencement of data collection volunteer chiropractors were flown to Kempsey *via* Port Macquarie so that a weekly chiropractic clinic was established and these clinics continued until the end of data collection.

## **Aims and Objectives**

### **The project had the following aims:**

To facilitate the development of a Chiropractic health-care program for the AMS of Kempsey, NSW; and to describe and evaluate, patient-centred health outcomes of the Chiropractic program using both qualitative and quantitative research approaches.

Project objectives included the following; respond to the aspiration for the provision of a Chiropractic health-care program for the Community of Kempsey through ongoing community consultation. Build a sustainable program by embedding the Chiropractic program within the existing AMS. Evaluate the impact of the program on patient-centred benefits using both quantitative and qualitative research approaches.

## **Methods**

The broader health outcomes of the program to the Kempsey Community were evaluated by validated patient-centred self-report survey tools (Euroqual and MYMOP) [8,9]. Researchers also collected qualitative data in the form of interviews to explore patient-centred responses to the introduction of Chiropractic care within this Community.

All patients (this included both Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander community members) 18 years or older attending the Booroongen Djugun aged-care facility and Durri AMS attending for Chiropractic treatment were invited to participate in this project. Patients were invited to participate if they were a new patient to the chiropractic service, suffered a new complaint or had not attended the Chiropractic service for a minimum period of 6 months.

Potential research participants were recruited by the research assistant independent of the Chiropractor in order to ensure that the Chiropractor was blinded as to whether the patient agreed to participate in the study or not. The participant completed two 1-page survey instruments prior to their 1st visit to the Chiropractor and then again, prior to the 4th visit or 4 weeks later (which ever

came first) [8]. Provision was also made to collect follow-up data over the phone if the participant was unable to attend the clinic. Participants were also informed that they might be invited to take part in a one-to-one interview with the research assistant after they had provided follow-up quantitative data. Participants did not have to agree to be interviewed in order to participate in the quantitative dimension of the project.

### **Quantitative Data Collection**

Patient-centered survey data were collected by the research assistant prior to the patient attending their first treatment. For the MYMOP, the research assistant asked the participant “What is the problem that affects you the most that is bringing you to the Chiropractor today?” Then, “Can you name two symptoms that are associated with this problem?” For example - a participant may have had a low back problem. The two symptoms associated with this problem may have been pain located in the low back and stiffness of the back. The MYMOP then used a Likert scale to determine how “good” or “bad” each symptom had been in the last week. The MYMOP survey then asked the participant to identify an activity (physical, social or mental) which was important to them, which was difficult to do, or prevents them from doing it, because of their problem. Again, the participant used a Likert scale to rank how “good” or “bad” this had been in the last week. Finally the MYMOP asked the participant to rate their general feeling of well-being during the last week using the Likert scale [8].

The MYMOP also identified how long the participant had each of the nominated problems, whether or not medication had been taken for the relief of the problem and whether cutting down on the taking of medication for the problem was important to the participant [7].

The second questionnaire (survey instrument) used in this project was the Euroqual Health Questionnaire. This one-page questionnaire explored the participant’s current health state in the dimensions of mobility, self-care, usual activities, pain/discomfort and anxiety/depression, rating each dimension with a score between 1 (best) and 3 (worst) [9]. Follow-up data for the Euroqual Health questionnaire occurred at the same time as the follow up MYMOP data collection. The participant then attended the Chiropractor and the clinician-patient encounter proceeded as usual.

### **Qualitative data collection**

The local Community research assistant was trained in

conducting the semi-structured interviews. These interviews were digitally recorded and they were then transcribed verbatim. Transcripts were analysed using a comprehensive, thematic, qualitative, content analysis [10]. These discussions were then examined and all statements that contributed to answering the research question were tabulated and coded. This coding took the form of both placing statements in common topics and in common conceptual Categories [11-13]. Tables generated by this data analysis enabled the researchers to determine the areas that were felt to be both common and important discussion points, these discussion points were then placed into themes or domains from relevant phrases. This data was validated by another senior qualitative researcher [14].

### **Results**

One hundred and two subjects from Booroongen-Djugun aged-care facility and Durri ACMS participated in this study. All gave their informed consent to participate in the project. Of these 13 participated in an interview. Twenty-one patients who were invited to participate in this study declined the invitation with the mean ( $\pm$  S.D.) age of this group being 43.7 ( $\pm$  16.4) years. More males than females declined the invitation to participate in the research. Reasons provided included being too busy to participate, not interested or reason not identified.

#### **Demographic characteristics**

Sixty-one percent of the participants in this study were female. The mean age of participants was 38 with a range of ages between 18 and 76 years.

#### **Kempsey Community Survey of Muscle, Joint and Bone Conditions**

In order to document the patient nominated “problem” (Table 1) each was coded into a region of the body using an adapted version of the body schema developed by one of the research team in a previous study [4]. The most frequent presentation involved more than one region of the body, for example neck and low back problem. This result is consistent with that obtained by Vindigni (2004) [5]. All participants were asked to indicate how long they had experienced their current problem and the duration of the problem was categorised and coded. These scores indicated that the average duration of presenting problems of the participants was between 3 months and 1 year. Chronic pain was defined (in the time domain) as greater than 3 months duration.

Code	Body Region	No of participants
1	Head	3
2	Neck	10
3	Shoulder	1
4	Upper back	7
5	Low back	16
6	Hips	3
7	Upper limb	1
8	Lower limb	4
9	More than 1 body region	22

**Table 1:** Coding and frequency for body region nominated by participant as area of complaint (problem).

### Euroqual Scores

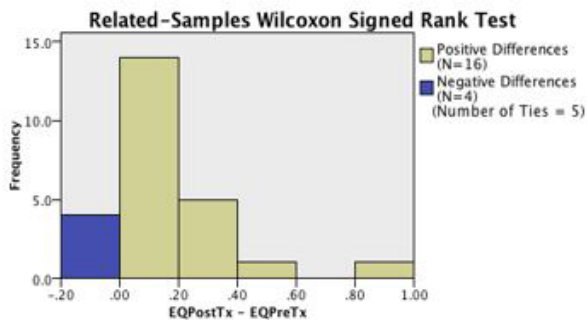
Scores were obtained for each of the 5 domains of the Euroqual Health Questionnaire (Tables 2 and 3 Figures 1 and 2). Participants were asked to rate each domain on a scale between 1 (no problem) to 3 (extreme problem or inability to perform activity). The results demonstrate that the problems that participants in this study identified significantly impacted on their quality of life.

Variable	Observation
Total N	25
Test Statistic	188.000
Standard Error	26.779
Standardized Test Statistic	3.099
Asymptotic Sig (2-sided test)	.002

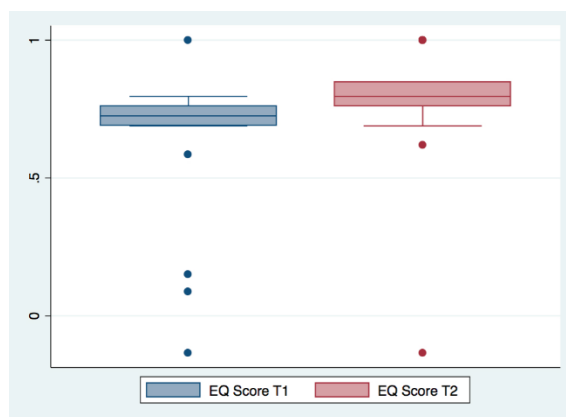
**Table 2:** Euroqual Scores.

Variable	Obs	Mean	Std Dev.	Minimum	Maximum
<b>EQScore T1</b>	25	0.65912	0.249293	-0.135	1
<b>EQScore T2</b>	25	0.78708	0.2224504	-0.135	1

**Table 3:** Summary of Euroqual Time 1(EQ score T1) and Time 2 (EQ score T2).



**Figure 1:** Histogram of Euroqual profile scores.



**Figure 2:** Box Plot of Euroqual Time 1 and Time2.

**MYMOP Profile Scores**

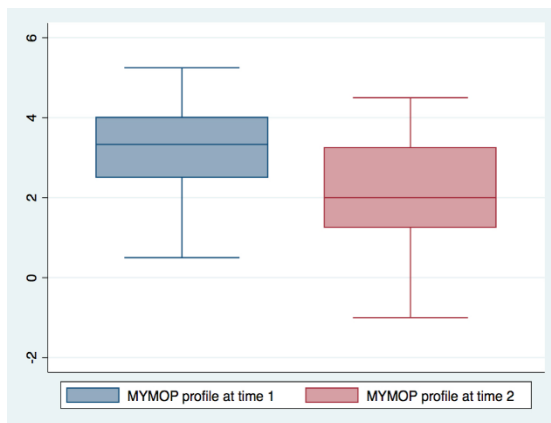
Tables 4 and 5, and Figure 3 show the difference in profile scores from Time 1 to Time 2 which indicates that patients had a significant change in their symptomatology due to chiropractic treatment.

Variable	Observations	Mean	S.D.	Min	Max
<i>Time 1</i>					
Symptom 1	35	3.828571	1.224402	0.0	6
Wellbeing	35	2.571429	1.803358	-3MYMOP profile	6
MyMOP Profile Score	35	3.285714	1.134408	0.5	5.25
<i>Time 2</i>					
Symptom 2	35	2.371429	1.628527	0.0	6
Well being	35	1.914286	1.804756	-4	5
MyMOP Profile Score	35	2.157143	1.394546	-1.0	4.5

**Table 4:** MYMOP Scores.

Wilcoxon signed-rank test			
sign	obs	Sum ranks	expected
positive	26	537.5	315
negative	9	92.5	315
zero	0	0	0
all	35	630	63
Unadjusted variance		3727.50	
Adjustment for ties		-11.2	
Adjustment for zeros		0.00	
Adjusted variance		3716.25	
Ho: MYMOP profile at time 1 = MYMOP profile at time 2 z = 3.650 Prob >  z			

**Table 5:** MYMOP scores.



**Figure 3:** Box plots of MYMOP profile scores at Time 1 and Time 2.

**Qualitative results**

Thirteen patients who had agreed to participate in this study were interviewed. The question asked of these patients was an open-ended research question; “What has changed for you since you had the chiropractic treatment.” This question was targeted for each patient regarding the symptoms that they had listed on the MYMOP. The analysis identified themes in 4 domains; these included identification of the problem, changes after treatment, therapy comments, and the lasting effects of treatment.

In the first domain “Identification of the problem”, participants referred to having more than one problem and that the effects of the problem also affected them in more than one way; that is, they not only had a painful problem, but it also affected other aspects of their lives. The following illustrates this point;

“When I first started coming I was very stressed and had pain in my lower back and around the shoulders.”

The second domain illustrates the “changes that occurred after treatment”; some participants did feel better, in terms of the level of pain that they felt, however, it was also apparent that participants received other benefits as a result of treatment. The following illustrates this; “Not as stressed or worried about the problem. Felt good straight away”.

“Comments about the therapy” included the third domain in which participants spoke about gaining trust in the Chiropractor, feeling comfortable and pleased that the Durri ACMS had a regular chiropractic service. A further comment attested to the relationship that the Chiropractor built with the patient. “I enjoy my sessions with the therapist”.

The final domain identified was; the “lasting effects of treatment”. Participants strongly identified sleeping better after a short series of treatments. This theme is best illustrated by the following quote. “It did take stress off me at work sitting for long periods. I am sleeping better.”

**Discussion**

This study highlights the difficulties associated with providing allied health services in rural communities. To maintain a weekly service, volunteer Chiropractors (often travelling from Sydney five hours away), visited the Community, on a fortnightly basis with two other more local chiropractors attending on the other week. Ideally, practitioners would be accessible throughout the week as per some of the other Allied Health services so that Community members could readily receive a sufficient number of Chiropractic services to better manage the presenting conditions.

There were challenges associated with gathering pre and post treatment data. The methodology required a time period of four visits before follow-up, unfortunately this time period was incompatible with what actually occurred and affected the results with follow-up scores being far less than what was ideally required as part of the recommended protocol. This problem with follow-up was partly a reflection of the relatively limited availability of volunteer Chiropractors at both the Durri ACMS and Booroongen Djugun Aged Care Centre during the course of the project and partly a reflection of patients not returning for follow-up treatments, either because patients felt further treatment was unwarranted, they were too busy to attend or that they had moved on (common in this community).

The patient data that were collected included both Aboriginal and Torres Strait Islander (33%) and non- Aboriginal and Torres Strait Islander participants. This was because some of the data collected from the Booroongen Djugun clinic included non- Aboriginal and Torres Strait Islander patients. In many

instances patients who were non-Aboriginal and Torres Strait Islander are still considered part of the Community in keeping with the inclusive nature of this ACMS and Booroongen Djuun aged care center. This participant population overall reflected a rural community rather than an exclusive Aboriginal and Torres Strait Islander rural community.

Despite these limitations, the qualitative data suggests that the chiropractic treatment was well-received by members of the Community and there was a perception that the treatment had a positive impact on alleviating pain and disability and in some cases even contributed to other broader benefits such as 'alleviating stress' and even promoting quality of life. The comments by one patient which were also iterated by others were "that they were comfortable and pleased that the Durri ACMS had a regular Chiropractic service" was also an encouraging indication that the integration of such a program into the ACMS and the Aged Care Centre would increase the reach of the service and provide a better opportunity to measure its impact in the Community.

An important lesson the researchers learnt in the process of conducting this project was that consultation regarding the process of any research project in an Aboriginal and Torres Strait Islander community must start initially with the Elders and that this process needs to be understood and embraced at the highest level by the entire research team.

Since this research was conducted there has been much discussion regarding research in Aboriginal and Torres Strait Islander communities and a number of principles regarding this research have been laid out. Principle 1; Indigenous self-determination, recognises that Aboriginal and Torres Strait Islander peoples have the right to be fully engaged in research that affects them. This means that consultation is not sufficient and relationships of trust must be built from which respect and the integrity of the research can flow [15,16].

The other principles follow from this, Principle 2, concerns Indigenous leadership which indicates that to show merit, research in this field should be led by Aboriginal and Torres Strait Islander peoples. Principle 3, concerns impact and value stating that the research must aim to benefit Aboriginal and Torres Strait Islander people and this also involves informed consent which must be fully understood by participants. Principle 4, is about sustainability and accountability, and that researchers and institutions are required to be accountable for the impact of their actions and that research is designed and conducted to meet both present and future needs [16].

## Conclusion

The highly prevalent musculoskeletal findings in this study are consistent with those reported by Vindigni<sup>5</sup> in 2004 and support the expected substantial burden of musculoskeletal

conditions experienced in this community. Further work is required particularly in the area of follow-up data, however, the findings from this initial study attest to the need to build a sustainable, ongoing chiropractic service that specifically responds to the needs of the rural Community it serves. Unfortunately the aim to build a sustainable program at Kempsey was not achieved due to lack of resources at the time but could be revisited given these initial promising findings.

## Acknowledgements

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## References

1. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, et al. (2012) Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet* 380: 2163-96.
2. Australian Institute of Health and Welfare. Back problems (2012).
3. Lin IB, O'Sullivan PB, Coffin JA, Mak DB, Toussaint S, et al. (2012) 'I am absolutely shattered': the impact of chronic low back pain on Australian Aboriginal people. *Eur J Pain* 16: 1331-1341.
4. Vindigni D, Blunden S, Perkins J (2003) The prevalence of musculoskeletal conditions among Indigenous people living in rural Australia: an opportunity for health promotion? *Aboriginal and Islander Health Worker J* 27: 4-8.
5. Vindigni D (2004) Promoting the musculoskeletal health of Indigenous Australians living in rural Communities. *Aboriginal Health in Aboriginal Hands*. Doctoral Dissertation. University of Newcastle, (N.S.W.), School of Medical Practice and Population Health.
6. Paterson C, Britten N (2003) Acupuncture for people with chronic illness: Combining qualitative and quantitative outcome assessment. *Journal of Alternative and Complimentary Medicine*. 9: 671-681.
7. Paterson C, Vindigni D, Polus B, Browell T, Edgecombe G (2008) Evaluating a massage therapy training and treatment programme in a remote Aboriginal community: methods and preliminary findings. *Complementary Therapies in Clinical Practice* 14: 158-167.
8. Polus BI, Kimpton AJ, Walsh MJ (2011) Use of the Measure Your Medical Outcome Profile (MYMOP2) and W-BQ12 (Well-Being) outcomes measures to evaluate chiropractic treatment: an observational study. *Chiropractic & Manual Therapies* 19: 1-7.

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9. Humanrights.gov.au (2020) Close the Gap.
10. EuroQOL-5 Dimension Questionnaire (2013) Rehab Measures Database.
11. Qualitative methods in health research-methods - Data from interviews. 1999. RRJMHS: 2319-9865.
12. Waddington P, Bull R (2007) Cognitive interviewing as a research technique. *Social Research Update*. 2007:1 5.
13. Richards L. Handling qualitative data. 3rd ed.
14. The Centre for Clinical Epidemiology and Biostatistics, University of Newcastle, NSW, Australia Sociocultural studies II-Practical guide to Item analysis of questionnaire data. 1998.
15. Australian code for the Responsible conduct of Research, principle 6: 2-4.
16. Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) code of Ethics for Aboriginal and Torres Strait Islander research.