Table 9: Kruskal-Wallis test for comparison of median referral score in homeopaths

	How long are you practice (years)	N	Mean Rank	P value
Score for referral to chiropractor	0-4	18	12.06	0.034
	4-8	3	22.17	
	8-12	7	20.14	
	>16	3	23.83	
	Total	31		

Length of time in practice significantly influenced referral from homeopaths to chiropractors (p = 0.034). Those homeopaths who had been practising for the shortest time (0-4 years) tended to refer to chiropractors the most (see Table 9).

This finding is different to the existing literature, which indicates that increased length of time in practice leads to increased referrals. This is based on the observation that increased length of time in practice allows for the development of an interdependence network as well as to an understanding of the limitations and scopes of practice of other practitioners (Covey, 1999).

This difference could be due to the fact that newly qualified homeopaths had little confidence in handling musculoskeletal cases, but had confidence in chiropractors because they knew their scope of practice from having studied with them, and possible still had social relationships with them from that time. This is however a speculation and further research would be required in order to verify that this is indeed the case or whether other factors not assessed in this research are associated with this finding.

4.7.2 **Other Factors**

Table 10: Kruskal-Wallis test for comparison of median referral score in homeopaths

	How close is the nearest Chiropractor to your practice	N	Mean Rank	P value
Score for referral to chiropractor	0-2	22	15.30	0.224
	2-4	5	14.20	
	4-6	2	28.75	
	>8	2	15.50	
	Total	31		

Distance to the nearest chiropractor did not influence the referral rate to chiropractors and homeopaths (p =0.224). Table 10 shows that those homeopaths who practiced >8 km away from the nearest chiropractor had similar referral scores to those who practiced 0-2 and 2-4 km away. Thus it would seem that the earlier suggestions made are not applicable, even though the literature would be supportive of such a trend (Alonso, 2004). As indicated earlier this may also be a function of the sample size.

Table 11: Mann-Whitney test of median referral score to chiropractors in

homeopath respondents (n = 31) in those who do and do not share a practice with a chiropractor

	Do you share your practice with a Chiropractor	N	Mean Rank	Sum of Ranks	P value
Score for referral to chiropractor	Yes	13	13.73	178.50	0.242
	No	18	17.64	317.50	
	Total	31			

Similarly, ***sharing a practice*** with a chiropractor was not a significant factor influencing referral to chiropractors (p = 0.242), although those homeopaths who shared a practice with a chiropractor had lower referral scores than those who did not (meaning they referred more).

These responses are dependant on the understanding of practice sharing and to what extent the “sharing” within a particular practice setting constitutes referral. Practitioners who are partners in a practice may not indicate referrals to the other partner as referrals whereas someone in a medical centre may report referrals to another practitioner within the same medical centre. These results are therefore dichotomous and depend by and large on the degree to which the respondents understood the word “sharing”. Thus these results are inconclusive and therefore it is suggested that future research looks more closely at the wording of such questions in order to avoid confusion or a lack of statistical clarity.

Table 12: Kruskal-Wallis test for comparison of median referral score in homeopaths

	Nearest practitioner that you refer to	N	Mean Rank	P value
Score for referral to chiropractor	Chiropractor	19	12.55	0.019
	GP	10	22.40	
	Physiotherapist	2	16.75	
	Total	31		

Chiropractors being the ***nearest practitioner*** that homeopaths refer to was a significant factor influencing referral to chiropractors (p =0.019). This is shown in Table 12 compared to GPs and physiotherapists. This concurs with the previous discussion relating to the nearest practitioner, whereby close relationship between homeopaths and chiropractors exists as compared to the limited relationship (based on fewer referrals) of the allopathic disciplines in this study.

Table 13: Spearman's correlation for cross-referral in homeopaths

		Score for referral to chiropractor	Do you receive referrals from chiropractors	How many referrals from chiropractors did you receive in the last six months
Score for referral to chiropractor	Correlation Coefficient	1.000	.494(**)	-.259
	Sig. (2-tailed)	.	.005	.160
	N	31	31	31
Do you receive referrals from chiropractors	Correlation Coefficient	.494(**)	1.000	-.373(*)
	Sig. (2-tailed)	.005	.	.039
	N	31	31	31
How many referrals from chiropractors did you receive in the last six months	Correlation Coefficient	-.259	-.373(*)	1.000
	Sig. (2-tailed)	.160	.039	.
	N	31	31	31

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Cross referral from chiropractors to homeopaths significantly affected referral from ***homeopaths*** to chiropractors (r = 0.494, p =0.005). The frequency of receiving referrals from chiropractors in the last six months was negatively related to referral score but not significantly (p =0.160). Thus the higher the number of referrals, the lower the referral scores (the more they refer).

Also, having received referrals (coded from 1 to 5 meaning ‘always’ to ‘never’) from chiropractors was significantly negatively related to the number of referrals they received in the last six months (p = 0.039).

This supports the suggestion of the close relationship between chiropractors and

homeopaths, indicating that those professions within a similar paradigm tend to work synergistically.

Table 14: Kruskal-Wallis test for comparison of median referral score in homeopaths

	In the last six months which practitioner referred most of the above conditions to you	N	Mean Rank	P value
Score for referral to chiropractor	Chiropractor	12	11.75	0.131
	Homeopath	6	17.92	
	Physiotherapist	3	24.00	
	GP	10	17.55	
	Total	31		

Chiropractors having referred conditions mentioned in the questionnaire to the homeopath was non-significantly related to referral from homeopaths to chiropractors (p = 0.131). Those homeopaths who mentioned chiropractors in this question, scored the lowest for referral (see Table 14).

4.8 Factors Affecting Referral from Chiropractors to Homeopaths

Factors affecting referral from chiropractors to homeopaths were examined here. Analysis was confined to chiropractors only (n=31).

4.8.1 Demographic Factors

Table 15: Mann-Whitney test to compare median referral score to homeopaths in chiropractor respondents (n = 31) between genders

	Gender	N	Mean Rank	Sum of Ranks	P value
Score for referral to homeopath	Male	18	18.97	341.50	0.031
	Female	13	11.88	154.50	
	Total	31			

Gender of the chiropractor significantly influenced the referral (p = 0.031), within the intragroup analysis shown above. Females tended to refer more than males (even in the face of their lesser number within the chiropractic group). This was similar for the homeopaths to chiropractors, and would support the discussion in 4.2.2. This further validates the plausibility of the literature where it is indicated that females tend to develop interdependence patterns sooner than males (Covey, 1999).

Table 16: Kruskal-Wallis test for comparison of median referral score in chiropractors regarding age

	Age group	N	Mean Rank	P value
Score for referral to homeopath	20-30	12	12.13	0.160
	30-40	13	18.31	
	40-50	6	18.75	
	Total	31		

Age of the chiropractor did not influence the referral (p = 0.160), although the youngest age group showed the highest referral rates (Table 16). This would be congruent with the pattern seen for the homeopaths and does not support the proposed theory that increased age is related to increased number of referrals (Tauber, 2002).

Table 17: Kruskal-Wallis test for comparison of median referral score in chiropractors regarding length of time in practice

	How long are you practice	N	Mean Rank	P value
Score for referral to homeopath	0-4	10	10.95	0.139
	4-8	12	16.88	
	8-12	5	20.50	
	>16	4	20.38	
	Total	31		

Length of time in practice did not significantly influence the referral rates of chiropractors to homeopaths (p=0.139), although those who had been in practice for the shortest time seemed to refer to homeopaths the most. This latter trend is similar to what was found to be significant for homeopaths (see 4.7.1).

4.8.2 **Other Factors**

Table 18: Kruskal-Wallis test for comparison of median referral score in

chiropractors regarding distance

	How close is the nearest homeopath to your practice	N	Mean Rank	P value
Score for referral to homeopath	0-2	20	14.48	0.190
	2-4	5	13.60	
	4-6	3	22.00	
	>8	3	24.17	
	Total	31		

Distance to the nearest homeopath did not significantly influence the referral (p = 0.190). Those chiropractors who worked 2-4 kms away from the nearest homeopath had the highest referral rates. This study does not support the suggestion (Tauber, 2002) that the closer the point of referral the greater the degree of referral. The lack of attained significance may be related to the small sample size in this study.

Table 19: Mann-Whitney test of median referral score to homeopaths in chiropractor respondents (n = 31) in those who do and do not share a practice with a homeopath

	Do you share your practice with a homeopath	N	Mean Rank	Sum of Ranks	P value
Score for referral to homeopath	Yes	11	11.77	129.50	0.054
	No	20	18.33	366.50	
	Total	31			

Sharing a practice with a homeopath was borderline significant in influencing referral from chiropractors to homeopaths (p=0.054). Chiropractors who shared a practice with a homeopath tended to refer patients to homeopaths more often than those who did not share a practice with a homeopath.

These results however need to be interpreted with caution as the definition of what

"sharing" constituted was possibly very widely and loosely interpreted by the respondents. Therefore the results are at best inconclusive based on the above as well as the p-value. An increased number within the sample as well as the clearer definition of what constitutes "shared practice" could have affected a change in this statistical analysis.

Table 20: Kruskal-Wallis test for comparison of median referral score in chiropractors

	Nearest practitioner that you refer	N	Mean Rank	P value
Score for referral to homeopath	Chiropractor	5	18.50	0.295
	Homeopath	9	11.28	
	GP	14	18.18	
	Physiotherapist	3	15.83	
	Total	31		

There was no significant association between the nearest practitioner that chiropractors refer to and the score for referral to homeopaths. However, it can be seen from Table 20 that the score for referral to homeopaths was lowest in those who refer to homeopaths as their nearest practitioners.

Table 21 Spearman's correlation for cross-referral in homeopaths

		Score for referral to homeopath	Do you receive referrals from homeopaths	How many referrals from homeopaths did you receive in the last six months
Score for referral to homeopath	Correlation Coefficient	1.000	.408(*)	-.231
	Sig. (2-tailed)	.	.023	.211
	N	31	31	31
Do you receive referrals from homeopaths	Correlation Coefficient	.408(*)	1.000	-.533(**)
	Sig. (2-tailed)	.023	.	.002
	N	31	31	31
How many referrals from homeopaths did you receive in the last six months	Correlation Coefficient	-.231	-.533(**)	1.000
	Sig. (2-tailed)	.211	.002	.
	N	31	31	31

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

If chiropractors received referrals from homeopaths, they were significantly more likely to refer patients to homeopaths (r=0.408, p = 0.023). However, the number of times they received referrals from homeopaths was not significantly correlated with their referral score (p = 0.211, Table 21), indicating that intra-paradigmal interaction is limited between the two CAM professions. This may again highlight the suggestion by Haldeman and Meeker (2002) that chiropractic has reached a crossroads and that there is a need for the profession to re-evaluate its alliance with the biopsychosocial model and the biomedical model.

Table 22: Kruskal-Wallis test for comparison of median referral score in chiropractors

	In the last six months which practitioner referred most of the above conditions to you	N	Mean Rank	P value
Score for referral to homeopath	Chiropractor	6	19.83	0.075
	Homeopath	5	6.70	
	Physiotherapist	3	15.83	
	GP	17	17.41	
	Total	31		

There was a non-significant association between the score for referral to a homeopath and the practitioner which referred most of the listed conditions to the chiropractor ($p = 0.075$). The score for referral to homeopaths was lower when homeopaths had referred most of the conditions to the chiropractor.

4.9 **Summary**

4.9.1 **Referrals**

Sixty eight percent of chiropractors referred patients to homeopaths, whereas ninety seven percent of homeopaths referred patients to chiropractors. This contrast seems to exist as chiropractors seemed to frequently refer patients to the GP whose role may be perceived as similar to that of homeopaths. In addition, sixty one percent of chiropractors referred patients to other chiropractors while twenty nine percent of homeopaths refer to other homeopaths.

These results confirm that the referral relationship between chiropractic and the allopathic professions (principally the GP) is stronger than that found for homeopathy. This indicates that the chiropractic fraternity as represented by this sample has a greater

reliance for patient referral and return with an allopathic source. This may be because the chiropractors are able to source patients from the gatekeepers of medicine (Grumbach et al., 1995) and developing relationships with these GPs in order to cement their market share of the patient pie. In addition to this the paradigm of reference for the chiropractic fraternity may lie closer to that of the allopathic biomedical paradigm, than it does to the biopsychosocial paradigm.

Notwithstanding the above argument, there are also a large proportion of referrals that are sent to homeopaths (although smaller than GPs), which accounts for an apparent relationship between the chiropractors and homeopaths in this study. This indicates that the chiropractic fraternity still has vestiges of the biopsychosocial paradigm built into its framework.

Thus it would be fair to conclude that the chiropractic fraternity as represented by the sample in this study are truly standing at a crossroads (Haldeman and Meeker, 2002), where they need to decide on the direction of the chiropractic profession, so as to progress and develop. This conscious choice lies at the feet of every practitioner within the profession and it is determined by the majority (Tauber, 2002). Therefore with the development and education of future practitioners, attention needs to be paid to the long term development of the profession in respect of the paradigm approach that is being taken, long before the practitioner actually qualifies (Tauber, 2002).

The homeopathic fraternity appears to be entrenched to a greater extent in the biopsychosocial paradigm and therefore make most of their referrals to other practitioners within the CAM professions. This indicates that the tenets of the biopsychosocial paradigm are more firmly entrenched in this profession than they are in the chiropractic profession.

Based on the above, a logical deduction would be that the allopathic / biomedical paradigm profession would interact to a greater degree with those professions classified as biopsychosocial that have at least some tenets or basic areas of commonality with the

biomedical paradigm. This may explain the greater interaction with chiropractic as compared to homeopathy.

4.9.2 Factors Affecting Referral from Homeopaths to Chiropractors

Although almost all homeopaths said that they refer patients to chiropractors, the referral score differed between the homeopaths mainly due to the frequency of referrals as influenced by:

- Shorter time in practice.
- Chiropractors being the nearest practitioner they refer to.
- Receiving cross-referrals from chiropractors (but not the number of cross-referrals from chiropractors),

where all these factors were significantly related to and affected the referral score for homeopaths referring to chiropractors.

Thus it is suggested that these factors are modifiers of referrals from homeopaths to chiropractors.

4.9.3 Factors Affecting Referral from Chiropractors to Homeopaths

Factors affecting referral from chiropractors to homeopaths included:

- Female gender (refer to discussion 4.2.2),
- Sharing a practice with a homeopath, and
- Receiving cross-referrals from homeopaths, which all significantly influenced the referral score for chiropractors to homeopaths.

Thus it is suggested that these factors are modifiers of referrals from chiropractors to homeopaths.

4.9.4 Patients' Conditions Affecting Referral

It would seem for the most part that the trends established above are supported in the context of particular conditions, with the only modifier being the class of condition which was referred. This implies that the referral rate for musculoskeletal conditions was highest to the chiropractor, followed by the physiotherapist and the GP in descending order, whereas the referrals for non musculoskeletal conditions seemed to follow the trend of GP, homeopath, chiropractor and physiotherapist.

This study has revealed a strong relationship between the GP and chiropractor, a slightly weaker relationship between the chiropractor and homeopath and weak relationships between the homeopath and GP, the homeopath and physiotherapist, and between the chiropractor and physiotherapist.

4.10 Objectives and the Related Hypotheses

Having presented, discussed and summarised the results, the evidence from the preceding chapter has allowed for re-evaluation of the hypotheses set out at the beginning of the study. It is with the accepting or rejecting of these hypotheses that this chapter concludes, allowing for the researcher to present a final statement of results in Chapter 5 with recommendations that stem from this study as ideas for future research in this field.

The First Objective

Was to assess if cross referrals between chiropractors and homoeopaths exist in the management of musculoskeletal and non musculoskeletal conditions.

Hypothesis One

Referrals do not exist between chiropractors and homeopaths in the management of non musculoskeletal conditions.

This is accepted, based on the lack of significant findings with respect to the referral of non musculoskeletal conditions.

Hypothesis Two

Referrals do not exist between chiropractors and homeopaths in the management of musculoskeletal conditions

This is rejected, based on the presence of significant findings with respect to the referral of musculoskeletal conditions.

Hypothesis Three

Referrals between chiropractors and homeopaths are not congruent with the literature with respect to the management of non musculoskeletal conditions.

This hypothesis is accepted for chiropractic but rejected for homeopathy.

Hypothesis Four

Referrals between chiropractors and homeopaths are not congruent with the literature with respect to the management of musculoskeletal conditions.

This hypothesis is accepted for chiropractic but rejected for homeopathy.

The Second Objective

Was to assess the demographic characteristics of practitioners and characteristics of the related practices and how these factors influence referrals.

Hypothesis Five

Demographics of the practitioners are not factors that influence referrals.

With respect to gender ($p = 0.275$) and age ($p = 0.070$) there was no significance found, and thus in these instances one would accept the hypothesis. However, length of time has a significant p-value ($p = 0.034$). Thus this hypothesis is accepted in terms of referrals.

Hypothesis Six

Demographic characteristics of the practice are not factors that influence referrals.

This hypothesis is accepted for distance and sharing of practice as both outcomes showed no significance, however the hypothesis is rejected for the nearest practitioner that the respondents referred to which had a significance of $p < 0.001$.

4.11 Conclusion

From the foregoing results in Chapter Four, it would seem that a trend is evident; chiropractors and GPs have a good / mutually beneficial relationship as do chiropractors and homeopaths. This is evident from the chiropractic – homeopathic referral relationships explored in this study. In contrast to this, the homeopaths have a good referral relationship with chiropractors compared to their referral relationship with allopathic professions, which was weaker.

This indicates a shift in the chiropractic profession's position in health care and shows how well integrated the chiropractic profession is with respect to the two paradigms, as compared to the homeopathic profession which seems to be isolated and more polarised in the CAM fraternity. This perception is however limited to the confines of this study based on referral patterns. It nevertheless supports the assertion by Haldeman and Meeker (2002) that chiropractic finds itself at cross roads within health care and more specifically to between the paradigms.