# Chapter Four

## Results and Discussion of Results

### 4.1 Introduction

This chapter presents the results developed from the use of questionnaires in this study. These results will be discussed in the context of the literature available to date.

#### 4.1.1 Primary Data

This was collected and analysed through the completion of a questionnaire developed specifically for this research (Appendix 1).

#### 4.1.2 Secondary Data

Secondary data is that data which is defined as the literature obtained from sources outside of this research viz. internet, journals, books, commentaries, conference proceedings, handbooks as applicable to the context of this study.

4.1.3 **Key terms**: as applicable to the context of this chapter.

P value: is the probability of your results being due to chance or random error and if the p value is very small one can conclude that the results are significant (Hicks, 2004).

N: total number of scores (Hicks, 2004).

n: sample size (Hicks, 2004).

SD: is the average amount of deviation and is computed by taking the square root of the variance score (Hicks, 2004).

## 4.2 Demographics

### 4.2.1 Age

**Table 1: Age group distribution of homeopaths and chiropractors in the study (n=62)**

| | | | Occupation | | Total |
|---|---|---|---|---|---|
| | | | Chiro | Homeo | |
| Age group | 20-30 | Count | 12 | 15 | 27 |
| | | Column % | 38.7% | 48.4% | 43.5% |
| | 30-40 | Count | 13 | 8 | 21 |
| | | Column % | 41.9% | 25.8% | 33.9% |
| | 40-50 | Count | 6 | 8 | 14 |
| | | Column % | 19.4% | 25.8% | 22.6% |
| Total | | Count | 31 | 31 | 62 |
| | | Column % | 100.0% | 100.0% | 100.0% |

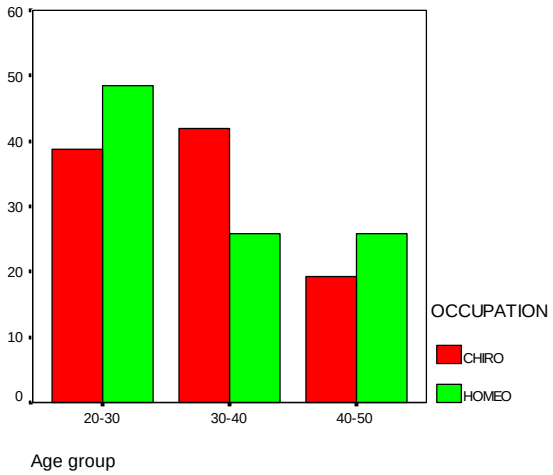


**Figure 1: Bar chart of age group distribution of chiropractors and homeopaths**

There was no significant difference in age group between the chiropractors and homeopaths (p = 0.405), although a greater proportion of chiropractors than

homeopaths were in the 30-40 year age group. This is shown in Table 1 and Figure 1. This implies homogeneity with respect to age between the groups, thus allowing for group comparisons (Mouton, 1996).

Review of the current literature does not show a relationship between age and referral patterns although age does play an important role in how practitioners refer to each other (Temoshok, 2004). The older the practitioner, the longer the practitioner would have been in practice, and thus the knowledge gained about other practitioners and their scope of practice would be better (Tauber, 2002). Thus they may refer to others more readily, as compared to a young practitioner who might only refer to another if a second opinion was needed or would be fearful of referring patients, with the thought that they would be lost to the receiving practitioner.

It could therefore be expected in this study that a correlation could be found between the subtle differences in age of the respondents and the effected referrals.

### 4.2.2 **Gender**

**Table 2: Gender distribution of chiropractors and homeopaths in the study (n=62)**

| | | | Occupation | | Total |
|---|---|---|---|---|---|
| | | | Chiro | Homeo | |
| Gender | Male | Count | 18 | 13 | 31 |
| | | Column % | 58.1% | 41.9% | 50.0% |
| | Female | Count | 13 | 18 | 31 |
| | | Column % | 41.9% | 58.1% | 50.0% |
| Total | | Count | 31 | 31 | 62 |
| | | Column % | 100.0% | 100.0% | 100.0% |

**P = 0.204**

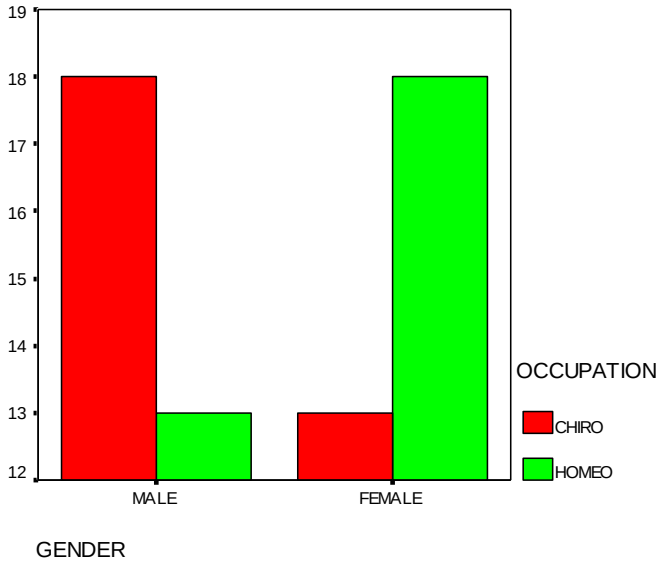


**Figure 2: Gender distribution of homeopaths and chiropractors in the study**

There was no significant difference in gender distribution between chiropractors and homeopaths in this study (p = 0.204), although Figure 2 shows that there were more male chiropractors than homeopaths. However, this difference was relatively small and not statistically significant.

The chiropractic profession embodies a manual therapy, in the form of manipulation. As a result it is a highly physical and demanding profession and thus it is plausible that the profession attracts a greater number of males than females. The converse is true of homeopathy and would therefore explain the higher incidence of females in this group (CASA, 2005; Homeopathic Association of South Africa (HSA), 2005).

Other modifying factors would include the fact that chiropractic is based on very mechanical and analytical assessments of patients in terms of the musculoskeletal / locomotor systems as opposed to homeopathy, which approaches the health of a patient in a similar manner to that of a GP, where there is a decreased mechanical approach although an analytical assessment of the patient condition is also completed. In general males tend to fare better with the perception of motion, three dimensional reasoning and mechanical concepts as opposed to females, thus predisposing the

chiropractic profession to predominance in males (Muto et al., 1996).

Furthermore the principle breadwinner in the family in South Africa is normally the male, where the female often has the opportunity to work part–time or not at all (Health Service Research Council, 2005). Thus it is possible to assume that female chiropractors who are still single or alternatively practice for additional income are those most commonly found in practice, whereas those that are married or require no secondary income, are not reflected as they no longer practice. This would therefore skew the demographics within the chiropractic group (Health Service Research Council, 2005).

This reasoning should also be applicable to the homeopathic group, however it is generally found that as a result of the fact that homeopathy becomes a lifestyle for the individual, the females tend to already have a “dispensary” for the home and the natural extension is the development of a nurturing and caring environment of a practice setting for members outside of the immediate family (HSA, 2005).

Therefore gender could play a role in referral patterns (Temoshok, 2004) based on the fact that the demographics with respect to gender show a gender predilection within each of the chiropractic and homoeopathic professions respectively. However the effect of this professional gender difference in this study will only be confirmed / refuted based on the inferential statistics discussed later in this chapter.

### 4.2.3 **Institution**

**Table 3: Qualifying institution for chiropractors and homeopaths in the study**

**(n=62)**

| | | | Occupation | | Total |
|---|---|---|---|---|---|
| | | | Chiro | Homeo | |
| Where did you qualify | AECC | Count | 1 | 0 | 1 |
| | | Column % | 3.2% | .0% | 1.6% |
| | DIT | Count | 12 | 17 | 29 |
| | | Column % | 38.7% | 54.8% | 46.8% |
| | LIFE | Count | 1 | 0 | 1 |
| | | Column % | 3.2% | .0% | 1.6% |
| | PALMER | Count | 3 | 0 | 3 |
| | | Column % | 9.7% | .0% | 4.8% |
| | TN | Count | 12 | 10 | 22 |
| | | Column % | 38.7% | 32.3% | 35.5% |
| | Unknown | Count | 0 | 4 | 4 |
| | | Column % | .0% | 12.9% | 6.5% |
| | WITS | Count | 2 | 0 | 2 |
| | | Column % | 6.5% | .0% | 3.2% |
| Total | | Count | 31 | 31 | 62 |
| | | Column % | 100.0% | 100.0% | 100.0% |

Qualifying institution by occupation is shown in Table 3. The majority of both occupations qualified at Durban Institute of Technology (formerly known as Technikon Natal), which follows logically from the recruitment area of the practitioners, which was in the greater Durban Metro area, where the Durban Institute of Technology is situated. It was not possible to get a valid p value for this table as >20% of the cells had expected counts of <5 due to the small sample size and large numbers of categories.

It can therefore be seen that the vast majority of participants qualified in South Africa (SA), while only four chiropractors qualified in the United States of America (USA) and one chiropractor qualified in the United Kingdom (UK). In respect of the homeopaths,

the vast majority completed their studies in SA, while only 12.9% where indicated as unknown.

These results therefore reflect the appropriate demographics of the population of the greater Durban Metro area, in which there is one educational institution that provides for instruction in chiropractic. As a result of the long course / programme that leads to the qualification of chiropractors in South Africa, it is likely that the majority of graduates reside within the Durban Metro area after qualification, as they have either settled in the city (married, bought property or made other lasting commitments) or alternatively had resided in the greater Durban Metro area before the onset of the programme and therefore have their roots in the city from the outset (CASA, 2005). This rationale is equally applicable to the homeopathic or chiropractic professions, when the results above are compared.

The few overseas qualifications or those qualifying at Technikon Witwatersrand (WITS) and returning to the greater Durban Metro could be as a result of:

- Spouse transfers to the greater Durban Metro area.
- Familial attendance of the alma mater in respect of the chiropractic institution attended.

### 4.2.4 **Practice Time**

**Table 4: Length of time in practice for homeopaths and chiropractors in the study (n=62)**

| | | | Occupation | | Total |
|---|---|---|---|---|---|
| | | | Chiro | Homeo | |
| How long are you in practice (years) | 0-4 | Count | 10 | 18 | 28 |
| | | Column % | 32.3% | 58.1% | 45.2% |
| | 4-8 | Count | 12 | 3 | 15 |
| | | Column % | 38.7% | 9.7% | 24.2% |
| | 8-12 | Count | 5 | 7 | 12 |
| | | Column % | 16.1% | 22.6% | 19.4% |
| | >16 | Count | 4 | 3 | 7 |
| | | Column % | 12.9% | 9.7% | 11.3% |
| Total | | Count | 31 | 31 | 62 |
| | | Column % | 100.0% | 100.0% | 100.0% |

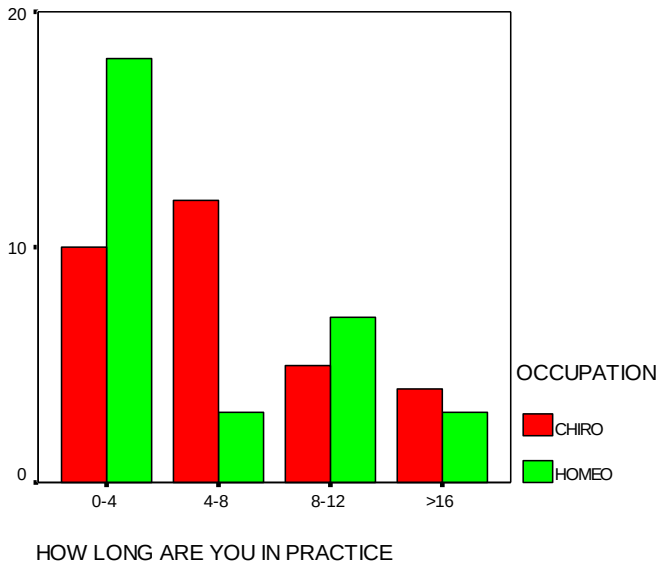


**Figure 3: Length of time in practice for chiropractors and homeopaths**

Length of time in practice was statistically significant between chiropractors and homeopaths (p = 0.043). The majority of the homeopaths were in practice for 0-4 years, while the majority of the chiropractors were in practice for 4-8 years. This suggests that chiropractors in the study were more clinically experienced than homeopaths.

From Table 1, it could be seen that the chiropractors in the sample seemed to be slightly older with a predominance of practitioners in the 30 – 40 year age group. In contrast to this the homeopaths had a predominance of respondents in the 20-30 year age group, indicating that the sample is less mature than the chiropractic sample. This concurs with the length of time in practice where the chiropractors had been in practice for longer than the homeopaths. This could therefore be a function of age as well as age at qualification. This can however only be confirmed with the analysis of the inferential data in order that this inference is confirmed / refuted.

**Summary of Practitioner Related Factors**

Descriptive statistics with respect to the respondents include statistics showing that the chiropractic group is slightly older and has been in practice for slightly longer, as indicated by the time in practice as well as the age of the respondent. This allows for the practitioner to become more settled in the routine of managing and referring patients (Temoshok, 2004). Being in practice longer allows the practitioners not only to build a patient base, but also refer to other health care providers in the immediate vicinity of the practice location (or within the city or town), allowing for more effective referral (Langworthy and Smink, 2000).

These statements are however speculation and can only be verified in the correlations discussed later in this chapter (see 4.7.1 and 4.8.1).

### 4.2.5 Other Factors

#### 4.2.5.1 Distance

***Distance of practice*** from the nearest practitioner was compared between chiropractors and homeopaths. There were no statistically significant differences, due to the small sample size and large numbers of categories; the chi square was invalid. Thus

trends were examined graphically in Figures 4-7.

Figure 4 shows the distance to the nearest chiropractor by occupation. It can be seen that chiropractors seemed to work closer to other chiropractors than homeopaths did, although this difference was not statistically significant.

Similarly in Figure 5, homeopaths tended to work closer to other homeopaths than chiropractors did, although the differences in proportions were very small.

Distance from GPs practices were very similar for both chiropractors and homeopaths (Figure 6), and distance from physiotherapists was greater in homeopaths than chiropractors but not significantly so.

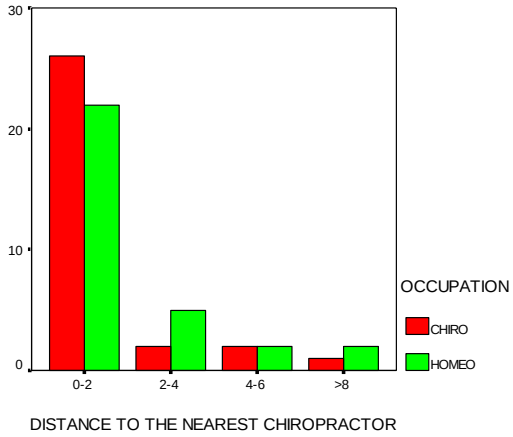


**Figure 4: Distance (km) to nearest chiropractor by occupation**

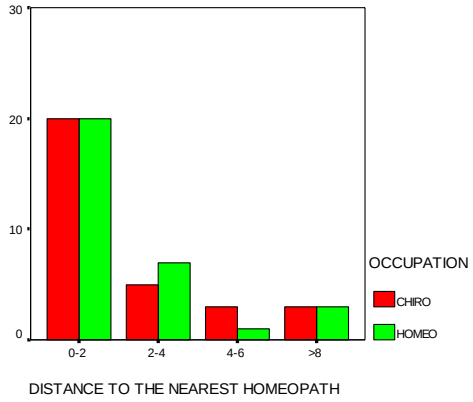

**Figure 5: Distance (km) to nearest homeopath by occupation**

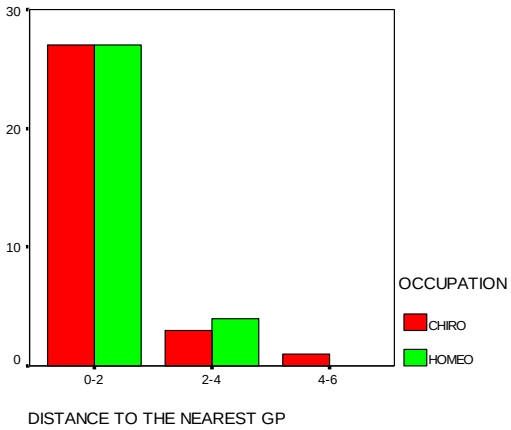


**Figure 6: Distance (km) to nearest GP by occupation**

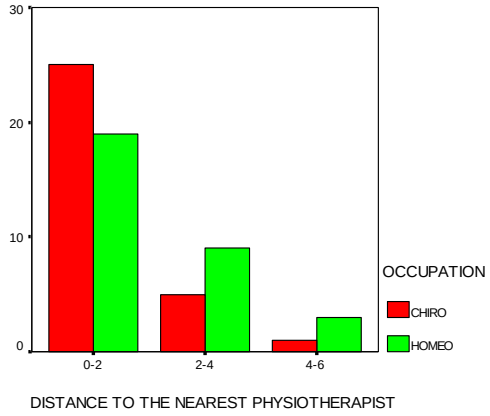


**Figure 7: Distance (km) to nearest physiotherapist by occupation**

It would seem from the above results that for the most part chiropractors and homeopaths work within a 2 km radius of other chiropractors, homeopaths, GPs and physiotherapists.

The data also indicates that the homeopaths seem to be in a closer proximity to the GP than chiropractors are.

The outcomes of this study need to be framed in two cautions:

- The type and manner of sampling whereby the sampling may not have sampled both chiropractor A and homeopath B in order for the outcomes to be entirely congruent.

- The questionnaire did not allow for an option “I don’t know” and therefore it is assumed that the practitioners (homeopaths and chiropractors) all know of the closest practitioner(s) in their region.

#### 4.2.5.2 **Sharing of Practice**

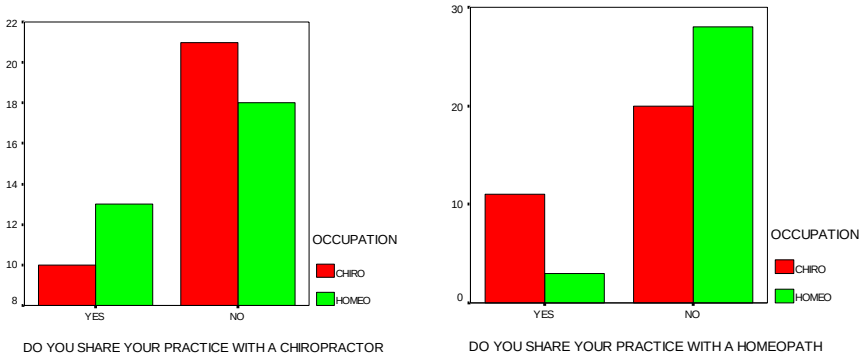


**Figure 8: (left) Number of chiropractors and homeopaths who share their practice with a chiropractor**

**Figure 9: (right) Number of chiropractors and homeopaths who share their practice with a homeopath**

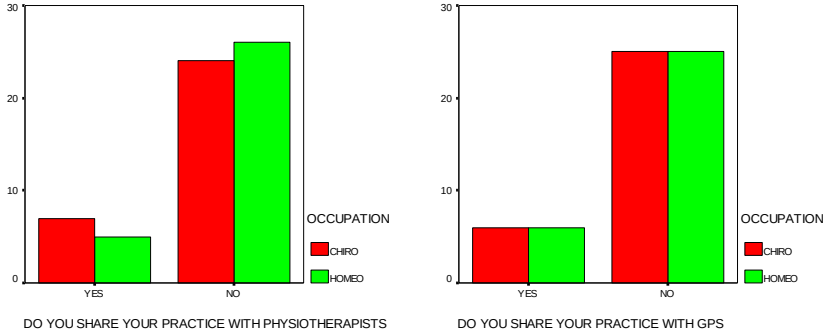


**Figure 10: (left) Number of chiropractors and homeopaths who share their practice with a physiotherapist**

**Figure 11: (right) Number of chiropractors and homeopaths who share their practice with a GP**

***Sharing of practices*** was more common between chiropractors and homeopaths than between chiropractors and other chiropractors or between homeopaths and other homeopaths or between these professions and physiotherapists or GPs.

Figure 8 shows that more homeopaths than chiropractors reported sharing their practice with a chiropractor ($p = 0.430$). Figure 9 shows that significantly more chiropractors than homeopaths shared their practice with a homeopath ($p = 0.015$). In addition this sharing is greater between the homeopathic and chiropractic practitioners than between these groups and the allopathic practitioners. This is congruent with the literature that indicates that practitioners with complementary approaches will work together (Van Den Brink-Muinen, 2000; Double, 2004).

This degree of sharing could arise from the fact that most participants were trained at the same institution (Durban Institute of Technology (DIT) or formerly known as Technikon Natal (TN) and thus they would have been exposed to each other's scope of practice (Chiropractic Handbook, 2005; Homeopathic Handbook, 2005) and developed relationships that could have lead to them sharing practices in the future.

With respect to the remaining two allopathic professions similar numbers of each occupation shared practices with a physiotherapist (chiropractors slightly more so than homeopaths) (Figure 10, $p = 0.52$), and identical numbers shared with a GP ($p = 1.000$, Figure 11).

One caution is however noted with respect to these results. It was noted on the questionnaires that were returned that some of the practitioners were unsure as to the definition of a "shared practice". This may have had an effect on the responses indicated by the chiropractors and homeopaths. Based on these comments, the researcher understood that the individual responses may have been interpreted as follows resulting in the outcomes showing a result that is not necessarily reflective of practice:

- Being in the same location (without necessarily being in a multidisciplinary setting).
- Being within a multidisciplinary setting (but as independent offices).
- Sharing a waiting room and / or front office reception area.

Therefore it is suggested that in future research that this terminology be further refined in respect of attaining a more accurate representation and possible normalisation of the responses, as the current responses make it difficult to establish the exact nature of the understanding noted in the responses by the respondents.

## 4.3 **Summary**

Sixty two participants participated in this study, 31 (50%) chiropractors and 31 (50%) homeopaths.

There were no significant differences between any demographic variables and the occupation of the participant, except for length of time in practice. It was nevertheless noted that there were profession specific tendencies that may have been significant should the population size have been greater in this study.

In order to establish the plausibility of the suggestions made in regard of the above and to establish the significance of these relationships, the researcher will now discuss the inferential statistics.

## 4.4 **Inferential Statistics**

### 4.4.1 **Referral**

#### 4.4.1.1 **Referral to Chiropractors**

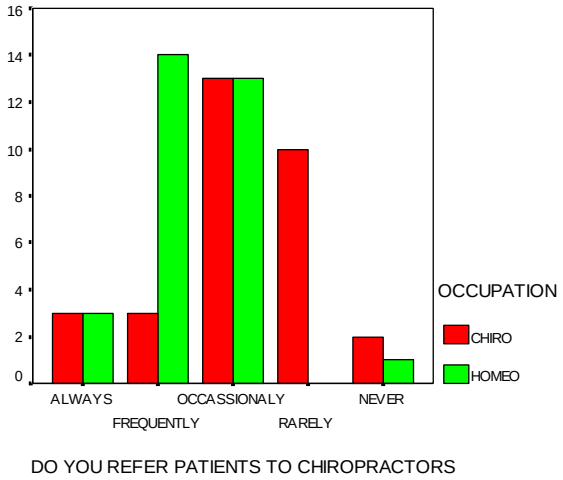


**Figure 12: Referral to chiropractors by occupation**

**Table 5: Percentage of chiropractors and homeopaths who refer patients to chiropractors**

| | | | Referral to Chiropractor | | Total |
|---|---|---|---|---|---|
| | | | no | yes | |
| Occupation | Chiro | Count | 12 | 19 | 31 |
| | | Row % | 38.7% | 61.3% | 100.0% |
| | Homeo | Count | 1 | 30 | 31 |
| | | Row % | 3.2% | 96.8% | 100.0% |
| Total | | Count | 13 | 49 | 62 |
| | | Row % | 21.0% | 79.0% | 100.0% |

This variable was dichotomised into “yes” or “no”, with “always, frequently and occasionally” constituting “yes” and “rarely and never” constituting “no”. Thus the results were significantly related to occupation (p = 0.001). Sixty one percent of chiropractors referred patients to other chiropractors, while 97% of homeopaths referred patients to chiropractors (Table 5).

Some chiropractors reported that they would refer patients to other chiropractors, but it was more common for homeopaths to refer to chiropractors. This is shown in Figure 12. The majority of homeopaths frequently referred patients to chiropractors. The majority of chiropractors occasionally referred patients to other chiropractors. This was statistically significant (p = 0.002).

The above findings could suggest that there is a good referral relationship between homeopaths to chiropractors, possibly due to their mode of practice in the biopsychosocial paradigm (Covey, 1999; Tauber, 2002).

This should hold true for the reverse referrals as well, but from the results it is not evident that this does hold true for chiropractors to homeopaths because chiropractors seem to work more with GPs.

#### 4.4.1.2 **Referral to Homeopaths**

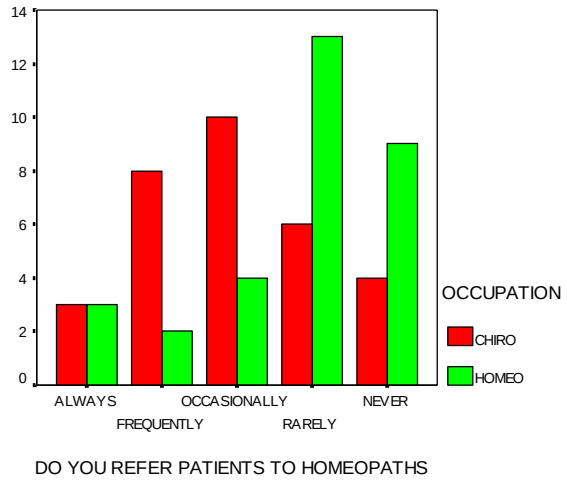


**Figure 13: Referral to homeopaths by occupation**

**Table 6: Percentage of chiropractors and homeopaths who refer patients to homeopaths**

| | | Referral to Homeopath | Total |
|---|---|---|---|

| | | | no | yes | |
|---|---|---|---|---|---|
| Occupation | Chiro | Count | 10 | 21 | 31 |
| | | Row % | 32.3% | 67.7% | 100.0% |
| | Homeo | Count | 22 | 9 | 31 |
| | | Row % | 71.0% | 29.0% | 100.0% |
| Total | | Count | 32 | 30 | 62 |
| | | Row % | 51.6% | 48.4% | 100.0% |

Unlike the referral to chiropractors, there was a significant difference between the proportions referring to homeopaths by occupation ($p = 0.030$). It can be seen from Figure 13 that homeopaths mainly rarely or never referred patients to other homeopaths, but chiropractors mainly frequently or occasionally referred patients to homeopaths. When referral to homeopaths was dichotomised in the same way as described above, there was also a significant relationship ($p = 0.002$). Only 29% of homeopaths referred to other homeopaths, while 68% of chiropractors referred to homeopaths.

Thus one can see that there is good relationship between chiropractors and homeopaths due to the biopsychosocial paradigm in which they work (Covey, 1999; Van Den Brink-Muinen, 2000; Double, 2004), even in the face of there being lesser referrals from chiropractors to homeopaths (Figure 15).

Therefore the similarity of the referral patterns differs, with the referrals as well as the reverse referrals not matching to the same degree, as the results indicate that homeopaths refer to chiropractors to a greater degree than chiropractors to the homeopaths. This could be for a number of reasons as indicated in the literature: patient referrals, second opinions, access to a greater pool of patients, and / or for financial gain (Van Den Brink-Muinen, 2000; Haldeman and Meeker, 2002; Double, 2004), since GPs are seen as the accepted gatekeepers in medical care (Grumbach et al., 1995). Thus it would seem that chiropractors could refer based on one or more of these needs which therefore modifies the basic expected principles as associated with the holistic approach (Covey, 1999; Van Den Brink-Muinen, 2000; Double, 2004) that characterises the profession or alternatively the chiropractors referral patterns are modified by

patients' expectations of referral to the allopathic fraternity (Alonso, 2004).

However a statistical evaluation with respect to the correlation between these factors and referral patterns would need to be discussed in order to determine a relationship and further research is warranted in terms of their effect on referrals between chiropractors and homeopaths in the greater Durban Metro area.

#### 4.4.1.3 **Referral to Physiotherapists**

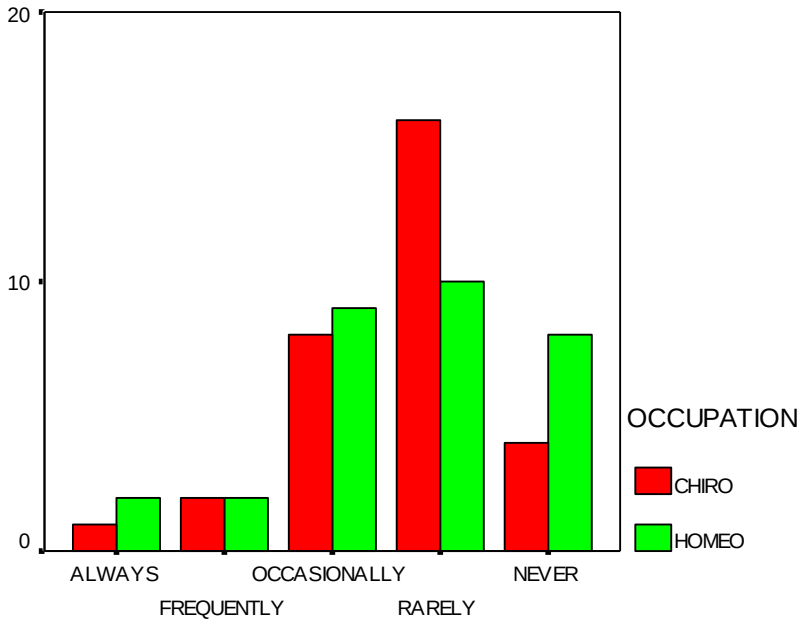


**Figure 14: Referral to physiotherapists by occupation**

There was no difference between chiropractors and homeopaths in their referral to

physiotherapists ($p = 0.540$). The overall rates of referral to physiotherapists were relatively low. This is shown in Figure 14.

Thus one can see that CAM practitioners work within their paradigm, which is supportive of the theories put forward by Covey (1999), Van Den Brink-Muinen (2000), and Double (2004), as the homeopaths would tend to refer to chiropractors (Figure 13) and chiropractors have within their scope of practice the ability to complete tasks that would otherwise be completed by physiotherapists (CASA, 2005).