Chiropractic in the Netherlands: A Survey of Dutch Chiropractors

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ABSTRACT

Background: In the Netherlands, there is increasing public and political interest in chiropractic treatment. There is, however, very little descriptive information available in the Netherlands on the chiropractic profession. Therefore, a survey was conducted among all Dutch chiropractors.

Methods: A questionnaire was sent to all members of the Netherlands’ Chiropractors Association (n = 59). It contained questions on (postgraduate) education, practice management, diagnostics (including radiology use), treatment, interprofessional cooperation and referral.

Results: The response was 88%. Chiropractic is growing rapidly; the number of chiropractors has doubled in five years. Chiropractors primarily treat back and neck pain, with an average of 8 treatments. Conventional orthopedic and neurological examination along with motion palpation are the cornerstones of physical examination. The respondents stressed the importance of direct access to radiography and specialized (hospital) diagnostics. Fifty-eight percent of the chiropractors have their own X-ray equipment. The most frequent reason for taking new X-rays was the absence of cooperation with radiology departments. Self-referral is the largest source of patients. The referral rate to other health care professionals is low.

Conclusions: The number of chiropractors is growing rapidly. They have an exceptional position in the Dutch health care system. Access to X-ray and more specialized diagnostics are presently the most important political issues. (J Manipulative Physiol Ther 1995; 18:129–134)

Key Indexing Terms: Chiropractic, Survey Methods, Netherlands.

INTRODUCTION

There is currently an increasing public and political interest in the Netherlands in chiropractic care, but there is very little background available on the chiropractic profession. In 1979, the national chiropractic patient association published a small patient survey (1). A few years later, in a government-sponsored study of complementary medicine, information on chiropractic practice was collected (2, 3). In 1989, Daams and Piercy, two health insurance physicians, published a patient satisfaction study of 315 patients (4).

All chiropractors in the Netherlands are members of the Netherlands Chiropractors Association (NCA). Requirements for membership are a degree from a college recognized by the (European) Council on Chiropractic Education, completion of the Graduate Education Program (1 yr) and fluency in the Dutch language. The position of Dutch chiropractors is not yet regulated in formal legislation (5). All other spinal manipulators in the Netherlands are physiotherapists or medical doctors with additional training in manipulation techniques (2). Consequently, the legal position of these professionals, in contrast with chiropractors, is more easily defined by their previous orthodox education. Patients can be treated without referral. Most insurance companies and health insurance funds reimburse treatment partially or totally (6). Chiropractors are still permitted to operate their own X-ray equipment if the maximum voltage used is less than 100 kV (7). Their ability to make and interpret X-rays is repeatedly questioned by members of the medical profession, especially by the Dutch anti-quackery association (8). In the Netherlands, chiropractors do not have direct access to medical laboratory facilities and high-tech diagnostic imaging such as magnetic resonance imaging (MRI) or computer tomography (CT). In addition, chiropractors are prohibited from drawing blood for laboratory diagnosis. Future legislation will most likely prohibit the use of X-rays by chiropractors (9). This anticipated legal exclusion is grounded in legislation of the European Union (10) and is based on the medical presumption that the diagnostic value of X-rays for spinal pain syndromes is limited (11, 12).

To obtain more detailed information, the Dutch Ministry of Welfare, Health and Cultural Affairs funded a study on chiropractic in the Netherlands. Begun in 1990, this project involved a review of the literature and a survey of chiropractors. The results of the literature review on the effectiveness of chiropractic have been published separately in journals and in a report in Dutch (5, 13–16). The aim of this article is to present the results of the survey of Dutch chiropractors. These results

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Paper submitted June 9, 1994; in revised form August 8, 1994.
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will be compared with the relevant international literature on chiropractic practice.

**METHODS**

The survey was designed and conducted in close cooperation with the NCA. The questionnaire contained questions on items relevant for chiropractic practice: initial education and subsequent training, diagnostics, indications and treatment, practice management, radiography and cooperation and communication with other health care professionals. For questions concerning the frequency of specific phenomena, a six-point ordinal scale was used. The options were never, seldom, sometimes, often, almost always and always. The questionnaire was mailed to all members of the NCA in June 1990. After two wk, a reminder was sent to the non-responders. After four wk, both a second reminder and a new questionnaire were sent. The returned questionnaires were subjected to a blind analysis to maintain the anonymity of the respondents.

Results are expressed in frequency distributions. Because the survey involved a complete sample of all chiropractors in the Netherlands, neither statistical testing nor calculation of confidence intervals were indicated.

International publications relevant to the subjects covered by the survey (especially other surveys) were identified in Index Medicus (search terms: chiropractic, manipulation, orthopedic), in Chiropractic Research Archives Collection (CRAC) (no specific search terms) and in Index to Chiropractic Literature (no specific search terms); also, a manual search was made of the Chiropractic Report and the European Journal of Chiropractic.

**RESULTS**

**Response**

Of the 59 members of the NCA, one lived permanently abroad. From the remaining 58 members, 51 returned a questionnaire that could be analyzed. One member indicated that he was unable to fill in the questionnaire because he had only recently started in practice. Therefore, the overall response rate was 88%. The tables present the data of the 51 respondents. Any question tallying fewer than 51 responses indicates that not all chiropractors responded to that item.

**Education and further training**

Fifteen chiropractors had had additional training at the college or university level. It was striking that six already had training as physical therapists. Two respondents were originally trained as nurses.

The majority of the chiropractors (59%) were educated at the Anglo-European College of Chiropractic in England, particularly the more recently graduated chiropractors. On the other hand, the majority of those who graduated more than 10 years ago had received their training in North America. Half (51%) of the chiropractors had been working in Holland for less than 5 yr. A quarter (26%) had practiced 6 to 10 yr and another quarter (23%) had already been practicing for more than 10 yr.

Once in practice, most chiropractors participated in further training. Forty-five chiropractors (88%) had followed some form of postgraduate training in the 3 yr preceding the survey, for a median of 5 days per year. In addition about, 4 hr a week were spent on home study and the reading of professional literature. The Journal of Manipulative and Physiological Therapeutics was regularly read by 25 persons. Dynamic Chiropractic (regularly read by 36 chiropractors), the European Journal of Chiropractic (regularly read by 39 chiropractors) and the Chiropractic Report (regularly read by 33 chiropractors) are journals mailed automatically to all members of the NCA.

**Diagnostics**

In Table 1, the regular diagnostic work-up of a new patient is presented. The main findings were:

- Taking a history, doing motion palpation, neurological and orthopedic examination and visual stature analysis were mentioned by almost all chiropractors.
- Parts of the physical examination that are not directly connected to the musculoskeletal system were not commonly used; these parts were used, however, by some chiropractors for some categories of patients. Although all colleges teach their students to make a full physical examination, including areas other than the spine and extremities, its use is relatively rare among Dutch chiropractors. Perhaps Dutch chiropractors are hesitant to perform this additional examination. However, in a comparative study of low back pain patients in the United States [where in most states chiropractors are legally permitted to perform extensive physical examination (17)], chiropractors used additional [non-musculoskeletal] examination techniques less often than medical doctors did (18).
- It is clear that most chiropractors regard X-rays as an essential part of the diagnostic work-up. Most other international surveys confirm this finding (18–27).
- Special diagnostic apparatus (e.g., thermograph, galvanometer, electrocardiograph) seems to be used by only a small minority of the chiropractors.

Table 2 depicts the perceived desirability of having direct access to certain diagnostic facilities. Almost all chiropractors (98%) stressed that it was (absolutely) necessary to have access to radiography. In addition, a great majority also stressed the importance of access to MRI, CT, myelography and laboratory testing, all of which are currently unavailable for chiropractors. The value of MRI, CT and myelography in documenting the cause of spinal pain was recently reviewed in JMBT by Wiesel (28). The performance and interpretation of laboratory diagnosis are taught at all chiropractic colleges. Both relatively simple tests that can be performed on the spot (e.g., sedimentation rate) and tests that normally take place in a hospital laboratory (e.g., prostate specific antigen) have a role in the diagnosis of specific conditions that might alter or contraindicate treatment by the chiropractor (29, 30). The importance of the desired imaging and laboratory facilities was recently
Table 1. Diagnostic work-up of a new patient

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Seldom or never</th>
<th>Sometimes</th>
<th>Often or always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral history taking</td>
<td>1</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Motion palpation</td>
<td>3</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Neurological examination</td>
<td>3</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Orthopedic examination</td>
<td>2</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Visual stature analysis</td>
<td>2</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>X-rays</td>
<td>3</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>History taking with printed list</td>
<td>17</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>4</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Examination abdomen</td>
<td>24</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Examination heart/lungs</td>
<td>26</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Examinations eyes/ears</td>
<td>32</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Instrumental stature analysis</td>
<td>34</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Thermography</td>
<td>45</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Podometry</td>
<td>40</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Galvanic skin reaction</td>
<td>49</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Electrocardiography</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

stressed by the standard-setting Mercy Center Consensus Conference (30, 31).

Indications and therapy

When asked to rank the relative frequency of main complaints encountered by chiropractors, backache was rated first, neck pain was second and headache was third. These were followed by pain in the lower extremities, pain in the upper extremities and pain in the thorax. Visceral complaints scored lowest. This patient profile seems to correspond with a “limited scope of practice,” indicating a role mainly as specialists in musculoskeletal problems (32). In a 1981 survey in Utah by Phillips, 19% of the patients presented with visceral disorders as chief complaint (33). In recent years, the proportion of visceral complaints to all complaints in the workload of American chiropractors has decreased from 14% in 1979 to 8% in 1989 (34). However, in recent chiropractic textbooks, the possible positive effects of spinal manipulation on organ function are still reviewed in detail (35, 36).

The frequency of use of the various therapeutic modalities is presented in Table 3. It is clear that almost all patients receive spinal manipulation. In a recently published randomized clinical trial by Meade et al. (37), 99% of the patients treated by chiropractors received spinal manipulation. Mobilization, Cox distraction and trigger-point therapy are applied relatively often as well. Instructions for exercises and general rules for life are also frequently given. There seemed to be differences among the chiropractors in the use of traction, massage and ice application. Diets and food supplements were not widely prescribed.

Practice management

Like their colleagues in other countries, most Dutch chiropractors work in a solo practice. Thirty-eight of the chiropractors worked alone and 10 chiropractors were associated. One chiropractor was working on contract. Seven chiropractors worked with specialized assistants. Of the assistants, two were specially trained chiropractic assistants, three were physiotherapists or sports massage therapists and the two remaining had other formal training. Most chiropractors worked in direct patient care for 30 to 40 hr per week, with 36 hr as median. In addition, 4 hr were spent on clinical reporting. The chiropractors estimated that, on average, their patients needed 8 treatments (range: 4–12) before maximum medical improvement was reached. This number is low compared to the other Dutch data from Maassen van den Brink et al. (2) and Daams and Pierrey (4). The average numbers of treatments published in the literature are given in Table 4 (2, 4, 22, 23, 37–39). For reasons of clarity, studies not summarizing the treatment frequency in an average figure (1, 24–27) have been omitted from the table.

Radiography

Table 5 shows the different bases upon which chiropractors take X-rays, have X-rays made or request an already-made X-ray (or a copy) from a neighboring hospital.

Diagnosis and prognosis were most often mentioned. In addition, exclusion of contraindications for therapy was a frequently mentioned reason. Posture analysis and indication for therapy were mentioned by less chiropractors. Follow-up was an important reason for only a small minority. According to almost all chiropractors (49 out of 51), it was absolutely necessary to be able to take an X-ray or to be able to have it taken (e.g., by colleagues or at a radiology department). In contrast, only 29 had their own X-ray facilities.

The most frequent reason for taking new X-rays was the absence of cooperation of the radiology departments (Table 6). This reason was mentioned by 30 of the 47 chiropractors (64%) (with and without their own X-ray facilities).

When asked to give an indication of the percentage of patients who had already had X-rays made before seeing the chiropractor, different estimates were given. Fourteen percent (4 of 28) of the chiropractors with X-ray equipment said that new X-rays were needed in more than half of the patients, and

Table 2. Desirability to have direct access to certain diagnostic facilities

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Not desirable or only slightly desirable</th>
<th>Desirable to absolutely desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiography</td>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>Simple laboratory testinga</td>
<td>9</td>
<td>41</td>
</tr>
<tr>
<td>Myelography</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>Computer tomography</td>
<td>11</td>
<td>39</td>
</tr>
<tr>
<td>Magnetic resonance imaging</td>
<td>11</td>
<td>38</td>
</tr>
<tr>
<td>Electrocardiography</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Specialist laboratory testingb</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>Doppler peripheral arteries</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Thermography</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>Electrocardiography</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Electronephelogram</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>Podometry</td>
<td>31</td>
<td>16</td>
</tr>
<tr>
<td>Galvanic skin reaction</td>
<td>42</td>
<td>7</td>
</tr>
</tbody>
</table>

a Simple laboratory testing is testing that is normally done in general practice (e.g., sedimentation rate, urinalysis).
b Specialist laboratory testing is testing that is normally done in a hospital or specialized laboratory (e.g., liver enzymes, HLA B27).
Table 3. Modes of therapy frequently being applied by the chiropractor (>20% of the chiropractors) or being applied under authority of the chiropractor

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Seldom or never</th>
<th>Sometimes</th>
<th>Often to always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustments</td>
<td>2</td>
<td>5</td>
<td>43</td>
</tr>
<tr>
<td>General rules of life</td>
<td>3</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Oral instruction for home exercises</td>
<td>10</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Trigger-point therapy</td>
<td>14</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Cox distraction</td>
<td>10</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Manual mobilization</td>
<td>10</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Ice packs</td>
<td>10</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Massage</td>
<td>23</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Traction</td>
<td>23</td>
<td>14</td>
<td>13</td>
</tr>
</tbody>
</table>

* Modes of therapy being applied often or always by less than 10 chiropractors are not mentioned in the table.

a quarter (5 of 21) of the chiropractors without X-ray facilities said that new X-rays were indicated for more than half of the patients. This does not mean that chiropractors do not endeavor to obtain X-rays from the hospitals. Over 82% said that they always request old X-rays. This percentage did not differ substantially between acute and chronic patients. Thirteen chiropractors said that they were even willing to travel to the hospital to review X-rays on the spot. It took them an average of 4.5 hr per month to do so. In most cases the X-rays were obtained by the chiropractor himself, not by the patient.

Cooperation and communication with other health care professionals

Self-referral is clearly the largest source of chiropractic patients (Table 7). This is in accordance with the results of earlier surveys of the Dutch patient association (1) and the report of Maassen van den Brink et al. (2). It also corresponds with surveys in the United States (20, 38, 40) and Europe (42) that also identified self-referral as the most important source of patients. General practitioners in particular seem to refer patients on a regular basis. Most chiropractors seldom refer patients to other forms of regular or complementary health care. Only nine chiropractors often referred patients to a general practitioner, seven did so to a physiotherapist and six to an acupuncturist (Table 7). This low referral rate was already identified by Maassen van den Brink et al. (2).

**DISCUSSION**

The response rate was high; 88% of the chiropractors practicing in the Netherlands at the time of the survey returned the questionnaire. Therefore, the results can be assumed to be representative for the entire profession in the Netherlands. The survey was intended to have a global and explorative character. A pilot study with the questionnaire showed that it was difficult to estimate quantitative information like percentages, proportions or exact numbers. Therefore, the descriptive form with six ordinal options (never, sometimes, etc.) was chosen. Consequently, the accuracy of the outcome is not very high. For future surveys in the Netherlands, a prospective (quantitative) registration is preferable. Some Dutch chiropractors have already participated in a pilot for such a study by Pedersen et al. (27, 41). Another limitation was the scope of the data collection; all aspects have been described from the chiropractor’s perspective. Therefore, relevant data from patients and other health care professionals is lacking. For instance, more information on patient profile or reasons for (non) referral by other professionals would be a valuable addition to the data presented in the Cooperation and Communication section. The data of the survey should interpreted with caution, because the chiropractors, partly for political reasons, could have given socially desirable answers. To minimize this potential source of bias, the purpose of the project and survey was carefully explained to all participants.

In the Netherlands, chiropractors are the only spinal manip-
Table 7. Sources of new patients and referrals to other health care providers

<table>
<thead>
<tr>
<th>Source of patients</th>
<th>Seldom or never</th>
<th>Sometimes</th>
<th>Often to always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-referral/advice of significant others</td>
<td>1</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>General practitioner</td>
<td>6</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Naturopath</td>
<td>8</td>
<td>26</td>
<td>17</td>
</tr>
<tr>
<td>Homoeopath</td>
<td>9</td>
<td>26</td>
<td>16</td>
</tr>
<tr>
<td>Physiotherapist</td>
<td>5</td>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td>Paranormal healer</td>
<td>19</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td>Magnetiser</td>
<td>21</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Iriscop</td>
<td>15</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>Acupuncturist</td>
<td>20</td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>Colleague chiropractor</td>
<td>9</td>
<td>37</td>
<td>5</td>
</tr>
<tr>
<td>Orthopedic surgeon</td>
<td>30</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Company physician</td>
<td>26</td>
<td>23</td>
<td>2</td>
</tr>
<tr>
<td>Workers’ compensation physician</td>
<td>25</td>
<td>25</td>
<td>1</td>
</tr>
<tr>
<td>Neurologist</td>
<td>27</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Psychologist</td>
<td>36</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Health insurance fund physician</td>
<td>27</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Pediatrician</td>
<td>42</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Referrals to others</th>
<th>Seldom or never</th>
<th>Sometimes</th>
<th>Often to always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>36</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>27</td>
<td>5</td>
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<td></td>
<td>13</td>
<td>31</td>
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<td></td>
<td>14</td>
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<td>7</td>
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<td></td>
<td>43</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>7</td>
<td>1</td>
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<tr>
<td></td>
<td>45</td>
<td>5</td>
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<td></td>
<td>23</td>
<td>25</td>
<td>3</td>
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<td></td>
<td>8</td>
<td>40</td>
<td>3</td>
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<td></td>
<td>15</td>
<td>34</td>
<td>1</td>
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<td></td>
<td>34</td>
<td>16</td>
<td>1</td>
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<td></td>
<td>35</td>
<td>13</td>
<td>1</td>
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<tr>
<td></td>
<td>9</td>
<td>38</td>
<td>3</td>
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<td></td>
<td>31</td>
<td>19</td>
<td></td>
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<tr>
<td></td>
<td>41</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Chiropractors without previous formal training as physiotherapist or medical doctor (2). This survey provides a picture of a small but rapidly expanding profession. In the last five years, the number of chiropractors in the Netherlands has doubled. In January 1994 there were 100 registered chiropractors in the NCA. Most of the recently graduated chiropractors were trained in England. The chiropractors seem to invest a reasonable amount of time in postgraduate training and home study. The basis of the chiropractic diagnosis turns out to be the orthopedic and neurological examination which is also used by other (para) medical professionals. In addition, motion palpation is applied. Only a minority of the chiropractors uses special apparatus for diagnosis. Chiropractors are very keen on direct access to radiographic facilities. They also stress the importance of direct access to laboratory facilities and other specialized diagnostic technologies, such as MRI, CT or myelography.

Chiropractors in the Netherlands mainly treat backache, neck pain and headache. Rules for daily living and exercise are generally prescribed but the cornerstone is definitely manipulation. In addition, various physical modalities are often used.

According to almost all respondents, X-ray diagnosis is an essential part of their patient assessment. A small majority of the Dutch chiropractors have their own X-ray equipment. At present, the Dutch government wants to prohibit the operation of X-ray equipment by chiropractors (9). The chiropractors are counteracting this threat by stressing the importance of X-ray diagnosis, based on legislation in other European countries (42). Concern about radiation dosage for the patient and the current political uncertainty seem to be the most important reasons for reluctance among chiropractors to purchase their own X-ray equipment.

Most patients seeing a chiropractor in Holland have had a long “career” in health care already (4). This seems to be the most likely explanation for the relatively high proportion of self-referrals. In addition, this intensive preceding contact with medical doctors, alternative healers and physiotherapists (4) also gives a probable explanation for the low number of referrals by chiropractors. These referrals are also restricted by the structure of the Dutch health care system. In the Netherlands, as in Great Britain, the general practitioner directly controls most of the referrals to specialists and physiotherapists.

CONCLUSION

Chiropractors make a diagnosis and supply treatment with relatively simple means. Knowledge and skills are maintained through literature study and additional training. Chiropractors in the Netherlands would prefer better access to specialized diagnostic facilities. The typical patient has had a long career of medical shopping, which partially explains the low referral rate by chiropractors to other disciplines. The emphasis on X-rays as an important aspect in diagnosis and treatment is one of the most typical features of the profession in the Netherlands.

ACKNOWLEDGEMENTS

We thank T. Nilsen, D.C. and T. P. de Baat, D.C. for their useful comments in the planning and analysis phase of the study. The project “Chiropractic in the Netherlands” was supported by Grant no. 89–15 of the Dutch Ministry of Welfare, Public Health and Cultural Affairs.

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