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Consultation with complementary medicine practitioners by individuals with chronic conditions: characteristics and reasons for consultation in Australian clinical settings

Journal:	<i>Health & Social Care in the Community</i>
Manuscript ID	HSCC-OA-19-0509.R2
Manuscript Type:	Original Article
Keywords:	Complementary Medicine, Chronic Illness, Patient Perspectives, Health Behaviours, Utilization

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Consultation with complementary medicine practitioners by individuals with chronic conditions: characteristics and reasons for consultation in Australian clinical settings

Abstract

The duration and complexity of chronic conditions leads patients to consult complementary medicine (CM) practitioners, yet such care-seeking by this clinical population has not been thoroughly examined. This study describes characteristics and reasons for consultation amongst those with chronic conditions who consult CM practitioners. A cross-sectional study surveyed patients in clinics of 39 CM practitioners from the five most accessed CM professions in Australia (chiropractic, massage, osteopathy, acupuncture, naturopathy). Between November 2018 and March 2019, CM practitioners invited 15 consecutive adult patients (n=585 invited) to a self-administered, hard-copy survey covering socio-demographics, chronic condition diagnoses, CM service utilisation and reasons for consulting the CM practitioner. In total, 199 surveys were returned, producing a final sample of n=191. Chronic conditions were reported by 153 (80.1%) participants, who were most commonly female (82.4%), aged over 65 years (29.0%), married (55.9%), vocational/trade qualified (40.1%), employed (62.5%), reported financial manageability as *not too bad* (48.0%), held private health insurance generally (79.0%) and specifically for CM (71.1%). Some socio-demographic differences were found depending on the profession consulted. Most participants (75.0%) had attended five or more consultations with the CM practitioner. The reasons most commonly given by participants with chronic conditions for consulting the CM practitioner were *This health care professional is supportive and compassionate* (n=136, 97.1%), *I believe this type of health care is safe* (n=131, 95.6%), *Improve general wellbeing and prevent future health*

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3 *problems* (n=125, 89.3%) and *This type of health care gives me hope about my future health* (n=108,
4 85.7%). These findings suggest individuals with chronic conditions may consult CM practitioners to
5 address unmet wellbeing or quality of life needs and for compassionate support. The role CM
6 practitioners fill for those with chronic conditions requires further exploration to develop optimal
7 policy and services to manage the growing challenges chronic conditions present to health systems.
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18 **Keywords**

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21 Complementary medicine, chronic illness, patient care, health behaviour, health care utilisation
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27 **What is already known about this topic**

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- Chronic conditions present a substantial and growing challenge to health systems, leaving many patients with unmet needs.
 - Individuals with chronic conditions appear to consult with complementary medicine practitioners at higher rates than the general population.

39 **What this paper adds**

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- Complementary medicine practitioners provide valued, ongoing care for some individuals with chronic conditions.
 - Individuals with chronic conditions who seek complementary medicine practitioners appear to do so for compassionate support, to improve wellbeing and for preventive care.
 - Further research is required to determine how the existing services provided by complementary medicine practitioners can be better utilised to optimise provision of care for those with chronic conditions to achieve more favourable health outcomes.

1. Introduction

Chronic conditions – which limit functional capacity and require prolonged medical management over time (Goodman, Posner, Huang, Parekh, & Koh, 2013) – present a substantial and growing burden of disease (World Health Organization, 2011). More than half of the Australian population live with at least one chronic condition (Australian Health Ministers' Advisory Council, 2017).

Prevalence of chronic conditions is increasing as the landscape of disease shifts away from acute and infectious diseases toward chronic and non-communicable conditions, precipitated by post-industrial lifestyle and environmental changes, and increased life expectancy (World Health Organization, 2011). However, health systems face many challenges in meeting the complex, ongoing health needs of individuals with chronic conditions (Australian Health Ministers' Advisory Council, 2017; World Health Organization, 2011).

Those with chronic conditions report a number of physical, psychosocial and financial challenges and unmet needs impacting on their health, health care experiences, and quality of life (Griffith et al., 2017; Liddy, Blazkho, & Mill, 2014; Paez, Zhao, & Hwang, 2009). The complexity and protracted nature of chronic conditions creates a need for multi-factorial approaches to care and self-management (Australian Health Ministers' Advisory Council, 2017) which often leads individuals to supplement medical care with additional services, such as those provided by complementary medicine (CM) practitioners (Armstrong, Thiébaud, Brown, & Nepal, 2011). CM refers to health practices, paradigms and products generally found outside of mainstream medical practice and training (World Health Organization, 2016). CM may be self-prescribed, but is also commonly provided by practitioners of CM professions, as well as some conventional medical providers (World Health Organization, 2016). Australians demonstrate particularly high rates of CM use – estimated at approximately 63% for CM use overall and 36% for CM practitioner use (Steel et al., 2018).

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3 Consultations with CM practitioners appear to be even higher amongst Australians with chronic
4 conditions (Steel et al., 2018).
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8 The decision to consult with CM practitioners is reportedly driven by a number of motivations,
9 including the patient's attraction to the holistic approach of many CM professions which seek to
10 "treat the whole person" (Sirois, 2008). Holistic approaches may be particularly useful in chronic
11 condition management as they involve a person-centred consideration of the many ways in which a
12 patient's daily life is affected by their condition, rather than solely treating the disease process (Foley
13 & Steel, 2017a). Other motivations which have been reported by patients as reasons to consult a CM
14 practitioner include a desire to take an active role in their own health, dissatisfaction with
15 conventional medicine or its side-effects, a desire for preventive health care, a perception of CM as
16 safe, a perceived ability of CM to provide hope and control, and a perception of CM practitioners as
17 being especially supportive (Reid, Steel, Wardle, Trubody, & Adams, 2016; Sirois, 2008).
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31 The high prevalence of CM use by those with chronic conditions suggests many amongst these
32 sufferers perceive value in CM for managing their health, and this potential value has been
33 acknowledged in global public health guidelines (World Health Organization, 2016). Limited research
34 has explored some drivers of CM utilisation in Australia by individuals with specific chronic
35 conditions, such as diabetes and cardiovascular disease (Spinks, Hollingsworth, Manderson, Lin, &
36 Canaway, 2013). Yet the factors surrounding CM practitioner consultation by individuals with chronic
37 conditions as a wider clinical population in Australia have not been examined thus far (Armstrong et
38 al., 2011; Reid et al., 2016). Understanding the profile and motivations of those with chronic
39 conditions who consult with CM practitioners is integral in order to develop more comprehensive
40 models of care delivery to this increasingly important clinical population, as well as to ensure the
41 health needs of those with chronic conditions are adequately met. Consequently, the aim of the
42 study reported here is to describe the characteristics and reasons for consultation amongst those
43 with chronic conditions who consult with CM practitioners in clinical settings.
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2. Methods

2.1 Study design and setting

A cross-sectional survey was conducted in community-based CM clinics throughout Australia between November 2018 and March 2019. The five most-commonly consulted clinical CM professions in Australia – massage therapy, chiropractic, acupuncture, naturopathy and osteopathy – were selected based on previous research (Steel et al., 2018). Practitioners of these professions were invited to assist with patient recruitment through three practitioner-based research networks (PBRNs): the Practitioner Research and Collaboration Initiative (PRACI)(Steel et al., 2017), the Osteopathy Research and Innovation Network (ORION)(Adams, Sibbritt, Steel, & Peng, 2018; Australian Research Centre in Complementary and Integrative Medicine, 2017), and the Australian Chiropractic Research Network (ACORN) (Adams et al., 2017).

2.2 Participants and recruitment

CM practitioners who were active clinicians and members of one of the participating PBRNs completed an online expression of interest and consent form to participate in the study. Seven to eight practitioners of each profession were selected on the basis of geographical location and were provided with hardcopy study materials (information sheets, surveys, and detailed instructions regarding the study protocol, the recruitment process and communication about the study with patients to ensure consistency in patient recruitment). The selected practitioners each provided 15 consecutive eligible patients with an information sheet about the study, a consent form and a hardcopy of the survey instrument, to be self-administered from home if the patient chose to participate. Participation was anonymous. This approach reduced selection bias, allowed patients to provide or withhold consent without coercion, and blinded practitioners to recruitment outcomes in order to preserve the integrity of patient-practitioner relationships (practitioners were not aware of who did or did not participate). Patients were considered eligible to participate if they were adults

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3 (aged 18 and over), fluent English speakers, capable of providing informed consent, and had not
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5 already participated during previous consultations with the recruiting practitioner.
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8 Each survey was provided with a reply-paid postage envelope to return completed surveys to the
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10 research team at no cost to practitioners or patients. The surveys also included a link to a separate
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12 online form where participants could choose to enter a draw to win a \$100 gift voucher as an
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14 incentive to participate. Personal details collected through the online form included only a name and
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16 contact point (phone or email), with the winner chosen randomly. A sample of 400 patients was
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18 sought to achieve a 5.0% margin of error, calculated using conservative estimates of chronic
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20 condition prevalence and response rates based on previous research in a similar population (Foley &
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22 Steel, 2017b).
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26 27 **2.3 Instrument**

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29 The survey was comprised of 29 questions, covering socio-demographics, chronic condition
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31 diagnoses, details of CM care-seeking, experiences of care received, and communication about
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33 treatments used by patients. Respondents who did not have a chronic condition diagnosis
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35 completed only socio-demographic items; this data was taken in order to establish the prevalence of
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37 chronic condition diagnoses amongst those consulting with CM practitioners and to identify
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39 potential socio-demographic differences between those with or without chronic conditions. All other
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41 variables were responded to only by participants with chronic conditions. Items applicable to the
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43 analyses presented here included socio-demographics, chronic condition diagnoses and details of
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45 CM care-seeking.
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50 Socio-demographics encompassed age, gender, state of residence, marital status, educational
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52 qualification level, employment status, financial manageability, private health insurance coverage,
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54 and possession of a Health Care Card (card provided to low-income earners in Australia for health
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56 and medical financial concessions). Current chronic condition diagnoses were identified by
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58 respondents from a list, with additional options for open-text responses alongside a “none of the
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3 above" option. Care-seeking items included profession of the CM practitioner who provided the
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5 survey, number of visits ever attended with the CM practitioner consulted (to determine whether
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7 the patient-practitioner relationship is new or ongoing), and a list of reasons for seeking care from
8
9 the CM practitioner. The list of reasons was informed by existing research (Reid et al., 2016; Sirois,
10
11 2008), subjected to face validity testing by researchers with expertise in the subject matter, and
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13 scored using a five-point Likert scale from *Strongly disagree* to *Strongly agree* with an additional
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15 *Doesn't apply* option.
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19 **2.4 Data handling and analysis**

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22 Data analysis was undertaken with StataIC 14 (StataCorp LC 2015). In order to produce adequate cell
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24 sizes, some variables were recoded to collapse response options where appropriate (age, marital
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26 status, educational qualification, employment status, financial manageability). Chronic condition
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28 diagnoses, including those reported by participants in open text responses, were recoded from
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30 specific conditions into broader condition categories as binary variables. Professions consulted were
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32 coded as binaries to allow comparison between participants who had consulted with a particular
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34 profession and participants who had not consulted that profession.
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39 Descriptive statistics were tabulated as frequencies and percentages, and Fisher's exact test was
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41 used to test associations and compare groups. Comparisons were drawn between participants with
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43 and without chronic conditions for socio-demographics, and between groups delineated by the
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45 profession consulted by those with chronic conditions for all variables. Missing responses were
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47 excluded from analysis, as were *Does not apply* responses for items describing reasons for
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49 consultation.
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52 **2.5 Ethics**

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55 Ethical approval was granted by the Human Research Ethics Committee, >REDACTED FOR REVIEW
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57 BLINDING<. This study conforms to the standards of the Declaration of Helsinki.
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3. Results

A total of 39 CM practitioners participated in the recruitment process (seven chiropractors and eight practitioners from each other profession) and confirmed distribution of the survey materials by emailing the research team. Of the 585 surveys distributed to patients, 199 were returned, providing a 34.0% response rate. Five returned surveys were excluded due to being incomplete and three others were excluded due to inconsistent responses which challenged reliability of the data (responses to some items contradicted responses to others), producing a final sample of 191 patients.

3.1 Participant characteristics

Within the full sample, 153 (80.1%) patients reported at least one diagnosed chronic condition. Participants with chronic conditions were more commonly female (82.4%) compared to participants with no chronic conditions (68.4%) ($p=0.042$). Participants with chronic conditions also reported higher rates of Health Care Card cover (37.6%) compared to those with no chronic conditions (15.8%) ($p=0.007$). No other statistically significant socio-demographic differences were found between the two groups (see Table 1).

Participants who reported at least one chronic condition diagnosis were most commonly female (82.4%), aged 65 years and over (29.0%), residing in New South Wales (27.2%), married (55.9%), vocational or trade qualified (40.1%) and employed (30.9% full time, 25.0% part time, 6.6% casually/temporarily). Participants most commonly reported financial manageability as *not too bad* (48.0%), held private health insurance cover generally (79.0%) and held private health insurance cover specifically for CM (71.1%), with 37.6% reporting Health Care Card cover. Full socio-demographic details are presented in Table 1.

[Insert Table 1.]

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3 For each of the five professions, a substantial majority of participants reported a chronic condition
4 diagnosis, ranging from 76.3% of those who had consulted a massage therapist to 93.3% of those
5 who had consulted a chiropractor. Between-group comparisons based on the profession consulted
6 found a higher proportion of men amongst those who consulted chiropractors compared to those
7 consulting the other four professions ($p=0.024$). Those who consulted a massage therapist had lower
8 rates of Health Care Card coverage ($p=0.027$) compared to those consulting with the other four
9 professions. Participants who had consulted a naturopath had a higher representation from the 65
10 years and over age group ($p=0.023$) and significantly lower rates of private health insurance
11 coverage, both generally ($p<0.001$) and for CM ($p=0.001$). Full details in Table 2.
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24 [Insert Table 2.]
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27 **3.2 Health service utilisation**

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29 A majority of participants were repeat patients to their CM practitioner with 75.0% indicating they
30 had attended five or more consultations. Between group comparisons found a significant difference
31 in number of consults for those who had consulted a naturopath as only 56.7% of participants
32 consulting this profession had attended five or more consultations. No other significant differences
33 were seen in the frequency of service utilisation (see Table 3).
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41 **3.3 Chronic condition diagnoses**

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43 The most commonly reported chronic condition diagnoses were musculoskeletal conditions (60.8%),
44 mental health conditions (47.7%), cardiovascular conditions (27.5%) and gastrointestinal conditions
45 (18.3%). There were few statistically significant differences in the categories of conditions reported
46 by participants across the different professions – higher rates of female reproductive conditions
47 were found amongst those who had consulted an acupuncturist ($p=0.042$), while those who had
48 consulted a naturopath demonstrated higher rates of reported mental health conditions ($p<0.001$)
49 and gastrointestinal conditions ($p=0.043$) (see Table 3).
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6 **3.4 Reasons for consultation**

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9 Of the 153 participants with chronic conditions, 150 (98.04%) selected at least one reason for their
10 consultation. The reason with which respondents most commonly reported they strongly agreed or
11 agreed was *This health care professional is supportive and compassionate* (n=136). A majority of
12 respondents also strongly agreed or agreed with the items: *I believe this type of health care is safe*
13 (n=131), *To improve general wellbeing and prevent future health problems* (n=125), *This type of*
14 *health care gives me hope about my future health* (n=108) and *This type of health care gives me a*
15 *sense of control about my health* (n=105). The reason with which respondents most commonly
16 reported they strongly disagreed or disagreed was *To seek treatment for an acute illness lasting less*
17 *than one month* (n=42), followed by *To reduce side-effects of my current medical*
18 *treatments/medicines* (n=38) and *I was dissatisfied with my conventional medical treatment and*
19 *wanted to try something different* (n=27). Full details in Table 4.
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34 **3.4.1 Reasons for consulting an acupuncturist**

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37 All 24 participants who had consulted an acupuncturist selected at least one reason for consultation.
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39 Amongst those who had consulted an acupuncturist, the reason for which respondents most
40 commonly selected Strongly agree or Agree was *This health care professional is supportive and*
41 *compassionate* (n=22), followed by *I believe this type of health care is safe* (n=21) and *To improve*
42 *general wellbeing and prevent future health problems* (n=21). The reasons with which respondents
43 consulting an acupuncturist most commonly strongly disagreed or disagreed were *To seek treatment*
44 *for an acute illness lasting less than one month* (n=10) and *To reduce side-effects of my current*
45 *medical treatments/medicines* (n=8) (see Table 4).
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55 **3.4.2 Reasons for consulting a chiropractor**

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3 Of the 28 respondents who had consulted a chiropractor, 27 provided at least one reason for
4 consultation. Respondents consulting a chiropractor most commonly selected strongly agree or
5 agree for items *To improve general wellbeing and prevent future health problems* (n=22), *This health*
6 *care professional is supportive and compassionate* (n=21) and *I believe this type of health care is safe*
7 (n=20). The items for which they most commonly selected strongly disagree or disagree were *To*
8 *reduce side-effects of my current medical treatments/medicines* (n=13) and *To enhance the*
9 *effectiveness of my current medical treatments/medicines* (n=10) (see Table 4).
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19 **3.4.3 Reasons for consulting a massage therapist**

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22 At least one reason for consultation was provided by all 29 respondents who had visited a massage
23 therapist. The reasons for which respondents consulting a massage therapist most commonly
24 selected strongly agree or agree were *This health care professional is supportive and compassionate*
25 (n=26) and *I believe this type of health care is safe* (n=26), followed by *To improve general wellbeing*
26 *and prevent future health problems* (n=22) and *This type of health care gives me hope about my*
27 *future health* (n=21). The item for which respondents consulting a massage therapist most
28 commonly selected strongly disagree or disagree was *To seek treatment for an acute illness lasting*
29 *less than one month* (n=10), followed by *To reduce side-effects of my current medical*
30 *treatments/medicines* (n=8), *I was dissatisfied with my conventional medical treatment and wanted*
31 *to try something different* (n=6), and *To seek treatment for a long-term illness lasting more than one*
32 *month* (n=5) (see Table 4).
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48 **3.4.4 Reasons for consulting a naturopath**

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50 Of the 33 participants who had visited a naturopath, 31 provided at least one reason for the
51 consultation. Amongst respondents consulting a naturopath, the reasons most commonly selected
52 as strongly agree or agree were *This health care professional is supportive and compassionate*
53 (n=29), *I believe this type of health care is safe* (n=28) and *This type of health care gives me a sense*
54 *of control about my health*. Very few respondents in this group selected strongly disagree or
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3 disagree for any items, with the most common being *To seek treatment for an acute illness lasting*
4 *less than one month* (n=4) and *I was dissatisfied with my conventional medical treatment and*
5 *wanted to try something different* (n=4) (see Table 4).
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9 10 **3.4.5 Reasons for consulting an osteopath**

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12 All 39 respondents consulting an osteopath provided at least one reason for their consultation.
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14 Those respondents who had consulted an osteopath most commonly strongly agreed or agreed with
15 the reasons *This health care professional is supportive and compassionate* (n=38), *I believe this type*
16 *of health care is safe* (n=36), *To improve general wellbeing and prevent future health problems*
17 (n=35) and *This type of health care gives me a sense of control about my health* (n=30). The reasons
18 with which respondents in this group most commonly strongly disagreed or disagreed were *To seek*
19 *treatment for an acute illness lasting less than one month* (n=9) and *To reduce side-effects of my*
20 *current medical treatments/medicines* (n=6) (see Table 4).
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38 **4. Discussion**

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40 This paper presents novel insights into the characteristics and motivations surrounding CM
41 practitioner consultations in Australia by individuals with chronic conditions – a substantial clinical
42 population representing a growing public health burden (Australian Health Ministers' Advisory
43 Council, 2017). Our results suggest that Australians with chronic conditions who consult CM
44 practitioners do so repeatedly over time and with a wide range of conditions. Patients visiting CM
45 practitioners are motivated by a desire for supportive, compassionate, safe health care to improve
46 their wellbeing. While there were many commonalities amongst our participants, there were also
47 some key differences in characteristics between those consulting with practitioners of different CM
48 professions.
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3 There appears to be little difference in socio-demographic characteristics between CM practitioner
4 service users with and without chronic condition diagnoses. However, the high prevalence of chronic
5 conditions within our sample and across the sub-groups consulting with each of the five professions,
6 together with the high rates of repeat consultation, indicate CM practitioners may be an important
7 resource for some people living with chronic conditions. Indeed, recent Australian-based research
8 identified that individuals with chronic conditions are more likely to consult CM practitioners than
9 individuals with no chronic conditions (Steel et al., 2018). While seeking treatment specifically for a
10 chronic condition was a widely reported reason for CM practitioner consultation, seeking improved
11 wellbeing and preventive care was more consistently reported. This indicates our participants also
12 use the services of CM practitioners to manage their general health and improve their wider quality
13 of life, rather than exclusively as a form of direct disease treatment. Such use reflects an
14 understanding of CM as a health resource used as a complement to conventional medicine and
15 implies CM practitioners may be addressing gaps in wider care provision (Liddy et al., 2014). These
16 patterns of use and motivation are also reflective of the philosophical focus on wellbeing and
17 preventive care inherent to many CM professions (Schuster, Dobson, Jauregui, & Blanks, 2004). Such
18 a philosophical focus may hold special appeal to individuals who face challenges around wellbeing
19 while living with chronic conditions, particularly as health systems face their own challenges in
20 addressing quality of life needs for this population (Australian Health Ministers' Advisory Council,
21 2017)

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46 Regarding the consistency with which participants indicated they visit their CM practitioner due to
47 viewing them as supportive and compassionate, it may be that individuals with chronic conditions
48 seek CM practitioners for care regarding psychosocial health needs (Franzel, Schwiengershausen,
49 Heusser, & Berger, 2013). This is also reflected in our participants' perceptions that the CM
50 practitioner instils hope and a sense of control for the individual over their own health; the CM
51 clinician may influence self-efficacy amongst their patients. Due to the protracted and often complex
52 nature of chronic conditions, alongside the impact on an individual's capacity to engage in work and
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3 social activities, health-related psychosocial challenges are frequently faced within this population
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5 (Australian Health Ministers' Advisory Council, 2017; Furler et al., 2008; Hall et al., 2012). The holistic
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7 philosophies of CM professions which seek to treat the “whole person” (Foley & Steel, 2017a), as
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9 well as the typically longer consultation times provided by CM professionals (Alami et al., 2011;
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11 Oberg et al., 2014), may produce an environment conducive to addressing psychosocial needs by
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13 allowing patients the time and space to be heard. This environment could facilitate exploration of
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15 potential solutions to challenges outside of direct, immediate medical needs.
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19 Patients consulting naturopaths more frequently reported having been diagnosed with mental
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21 health conditions, which require substantial psychosocial support, as well as gastrointestinal
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23 conditions, which often impact on psychosocial wellbeing (Hauser, Janke, Klump, & Hinz, 2011).
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25 While patients with such conditions have previously reported having needs which are not met by
26
27 conventional medical treatment (Dickman, Maradey-Romero, Gingold-Belfer, & Fass, 2015; Prins,
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29 Verhaak, van der Meer, Penninx, & Bensing, 2009), there is emerging evidence to support the
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31 efficacy of naturopathic whole practice and associated treatments, such as herbal medicines, in the
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33 treatment of mental health and gastrointestinal conditions (Myers & Vigar, 2019; Ottillinger, Storr,
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35 Malferteiner, & Allescher, 2013). There was also substantive agreement among our respondents
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37 consulting with a naturopath that their clinician is supportive and compassionate, which is consistent
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39 with previous research (Foley & Steel, 2017b) and naturopathic training (Connolly, 2014). The finding
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41 that fewer participants consulting naturopaths had attended five or more consultations, compared
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43 to participants consulting the other four professions, is notable and may relate to differences in the
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45 models of care provided by the different CM professions. Naturopathy holds, as a core philosophical
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47 principle, the intention to educate patients about their health management (Foley & Steel, 2017a;
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49 Hausser et al., 2017), and thus may facilitate development of greater patient autonomy with a
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51 subsequently reduced need for regular consultations. Further research investigating psychosocial
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53 outcomes of treatment, including patient autonomy, in a variety of CM professions would assist in
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55 identifying which CM resources might best suit the specific psychosocial needs of individual patients.
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3 CM professions using manual therapeutic approaches (e.g. chiropractic, osteopathy, massage
4 therapy) can be perceived by patients as serving similar treatment purposes (Brown, Dean, Hay-
5 Smith, Taylor, & Baxter, 2010). However, our findings noted variations in reasons for consulting with
6 practitioners of different manual therapies. Reports of seeking care for acute illnesses were notably
7 low amongst our study participants, with the exception of those consulting osteopaths. With
8 musculoskeletal conditions being the most reported diagnoses in our sample, the acute illnesses
9 experienced by participants consulting osteopaths may have been acute symptom flares of
10 underlying chronic conditions involving musculoskeletal complaints and pain. This is likely,
11 considering that 98% of osteopaths recently surveyed in Australia reported these as the types of
12 conditions most often treated in their clinical practice (Adams et al., 2018). However, it is unclear as
13 to why these reasons were not reported in a similar manner by respondents consulting
14 chiropractors, as musculoskeletal complaints also predominate within Australian chiropractic
15 practice (Adams et al., 2017) and chiropractors are one of the most frequently consulted CM
16 practitioners for back pain in Australia (Murthy et al., 2014).

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35 In contrast to osteopaths, participants consulting massage therapists less commonly reported
36 seeking treatment for illness (chronic or acute) as a reason for consultation. This may indicate that
37 some participants using massage therapy perceive this service as a luxury (Bishop, Yardley, & Lewith,
38 2008). The finding that participants using massage therapy had significantly lower rates of low-
39 income Health Care Card cover implies these participants may also have more disposable income to
40 spend on luxuries – a finding consistent with previous research identifying a correlation between use
41 of massage and greater financial manageability (Steel et al., 2014). However, there is an emerging
42 body of research to support the use of massage as a therapeutic treatment, particularly for
43 individuals experiencing pain (Crawford et al., 2016) and other musculoskeletal conditions (Bervoets,
44 Luijsterburg, Alessie, Buijs, & Verhagen, 2015). Further research exploring the strengths of different
45 manual therapies and their discrete value in treating different health conditions would be of great
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3 benefit to assist patients and medical professionals in decision-making around the use of CM
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5 practitioner services, particularly in the context of chronic disease.
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8 **4.1 Limitations**

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11 While our study provides valuable observations about CM practitioner consultation by Australians
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13 with chronic conditions and a useful platform from which to develop research aimed at better
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15 serving the needs of this population, certain limitations must be noted in the interpretation of
16
17 results. The small sample size limits the capacity for generalisation. However, the broad geographical
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19 spread of the sample mediates this limitation somewhat. While the recruitment process employed a
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21 consecutive approach to participant invitation in order to reduce the risk of sampling bias and a
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23 hard-copy instrument to optimise response rates, the anonymity and self-report nature of the
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25 survey may still have resulted in sampling bias that failed to include important members of the
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27 target population. Identification of the presence of chronic condition diagnoses was achieved
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29 through presentation of a list of chronic conditions, however it is not clear whether all respondents
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31 had experienced the condition for a prolonged duration at the time of surveying, thus the impact of
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33 chronicity may not be accurately reflected in the data. Additionally, missing responses to items
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35 relating to reasons for consultation, and the finite nature of the list of reasons presented to
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37 participants (which did not allow open text responses), prevent definitive interpretations of this data
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39 and statistical validation of the instrument. Nonetheless, as almost all participants responded to at
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41 least one item in this measure, it is likely that the responses provided reflect the reasons considered
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43 most important by participants. Larger studies using a similar sampling frame, as well as inclusion of
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45 open-text response options to reasons for consultation, would be advantageous to develop a deeper
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47 and more nuanced understanding of the research topic.
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54 **5. Conclusion and implications**

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57 Our findings suggest that for some individuals with chronic conditions, CM practitioners provide an
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59 important ongoing service toward the management of chronic conditions, which may be sought
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3 especially to improve wellbeing through access to supportive, compassionate care. There appear to
4
5 be differences in the nature of the services provided by various CM professions, which could be
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7 utilised to provide targeted care to address the diverse and specific needs of individuals with chronic
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9 conditions. This paper presents an opportunity for further research to examine the utility and value
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11 of CM practitioners as an existing, established resource to address the unmet needs experienced by
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13 those with chronic conditions. Such examination would facilitate development of policy and health
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15 services better positioned to optimally manage the needs of this clinical population.
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Tables

Table 1. Sociodemographics of full sample

		All respondents n= 191 (100%)	Chronic condition/s n= 153 (80.1%)	No chronic condition n= 38 (19.9%)	P value
Gender (n=191)					
	Female	152 (79.6%)	126 (82.4%)	26 (68.4%)	0.042
	Male	38 (19.9%)	26 (17.0%)	12 (31.6%)	
	Transgender†	1 (0.5%)	1 (0.7%)	0 (0.0%)	
Age (n=190)					
	18-34	22 (11.6%)	15 (9.9%)	7 (18.4%)	0.358
	35-44	31 (16.3%)	25 (16.5%)	6 (15.8%)	
	45-54	44 (23.2%)	35 (23.0%)	9 (23.7%)	
	55-64	43 (22.6%)	33 (21.7%)	10 (26.3%)	
	65+	50 (26.3%)	44 (29.0%)	6 (15.8%)	
State (n=185)					
	ACT	8 (4.3%)	4 (2.7%)	4 (10.5%)	0.181
	NSW	48 (26.0%)	40 (27.2%)	8 (21.1%)	
	VIC	33 (17.8%)	26 (17.7%)	7 (18.4%)	
	QLD	43 (23.2%)	31 (21.1%)	12 (31.6%)	
	SA	16 (8.7%)	13 (8.8%)	3 (7.9%)	
	WA	10 (5.4%)	10 (6.8%)	0 (0.0%)	
	TAS	27 (14.6%)	23 (15.7%)	4 (10.5%)	
	NT	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Relationship status (n=190)					
	Never married	29 (15.3%)	25 (16.5%)	4 (10.5%)	0.198
	Married	109 (57.4%)	85 (55.9%)	24 (63.2%)	
	De facto	22 (11.6%)	15 (9.9%)	7 (18.4%)	
	Separated/divorced/widowed	30 (15.9%)	27 (17.8%)	3 (7.9%)	
Education (n=190)					
	Up to year 12	42 (22.1%)	36 (23.7%)	6 (15.8%)	0.569
	VET/trade	77 (40.5%)	61 (40.1%)	16 (42.1%)	
	Higher education	71 (37.4%)	55 (36.2%)	16 (42.1%)	
Employment status (n=189)					
	Full time work	64 (33.9%)	47 (30.9%)	17 (46.0%)	0.211
	Part time work	47 (24.9%)	38 (25.0%)	9 (24.3%)	
	Casual/temporary work	13 (6.9%)	10 (6.6%)	3 (8.1%)	
	Not in paid workforce	65 (34.4%)	57 (37.5%)	8 (21.6%)	
Financial status (n=187)					
	It is impossible/difficult all of the time	18 (9.6%)	16 (10.7%)	2 (5.4%)	0.641
	It is difficult some of the time	39 (20.9%)	33 (22.0%)	6 (16.2%)	
	It is not too bad	92 (49.2%)	72 (48.0%)	20 (54.1%)	
	It is easy	38 (20.3%)	29 (19.3%)	9 (24.3%)	
	PHI cover (n=190)	148 (77.9%)	120 (79.0%)	28 (73.7%)	0.309
	PHI cover for CM (n=190)	135 (71.1%)	108 (71.1%)	27 (71.1%)	0.573
	Health care card (n=187)	62 (33.2%)	56 (37.6%)	6 (15.8%)	0.007

†Excluded from analyses of gender due to small cell size

Table 2. Sociodemographics of respondents with chronic conditions, by profession consulted

	Acupuncture n=24 (77.4%) [†]	<i>P</i>	Chiropractic n=28 (93.3%) [†]	<i>P</i>	Massage n=29 (76.3%) [†]	<i>P</i>	Naturopathy n=33 (80.5%) [†]	<i>P</i>	Osteopathy n=39 (76.5%) [†]	<i>P</i>
Gender (n=153)										
<i>Female</i>	21 (87.5%)	0.376	19 (67.9%)	0.024	26 (89.7%)	0.216	28 (84.9%)	0.313	32 (82.1%)	0.523
<i>Male</i>	3 (12.5%)		9 (32.1%)		3 (10.3%)		4 (12.1%)		7 (17.9%)	
<i>Transgender‡</i>	0 (0.0%)		0 (0.0%)		0 (0.0%)		1 (3.0%)		0 (0.0%)	
Age (n=152)										
<i>18-34</i>	3 (12.5%)	0.849	3 (10.7%)	0.455	3 (10.3%)	0.153	2 (6.1%)	0.023	4 (10.5%)	0.071
<i>35-44</i>	3 (12.5%)		6 (21.4%)		4 (13.8%)		6 (18.2%)		6 (15.8%)	
<i>45-54</i>	5 (20.8%)		9 (32.1%)		11 (37.9%)		7 (21.2%)		3 (7.9%)	
<i>55-64</i>	7 (29.2%)		5 (17.9%)		7 (24.1%)		2 (6.1%)		12 (31.6%)	
<i>65+</i>	6 (25.0%)		5 (17.9%)		4 (13.8%)		16 (48.5%)		13 (34.2%)	
Relationship status (n=152)										
<i>Never married</i>	2 (8.3%)	0.388	3 (10.7%)	0.247	7 (24.1%)	0.219	5 (15.2%)	0.088	8 (21.1%)	0.243
<i>Married</i>	13 (54.2%)		20 (71.4%)		13 (44.8%)		15 (45.5%)		24 (63.2%)	
<i>De facto</i>	2 (8.3%)		3 (10.7%)		5 (17.2%)		2 (6.1%)		3 (7.9%)	
<i>Separated/divorced/widowed</i>	7 (29.2%)		2 (7.1%)		4 (13.8%)		11 (33.3%)		3 (7.9%)	
Education (n=152)										
<i>Up to year 12</i>	6 (25.0%)	0.454	7 (25.0%)	1.00	3 (10.3%)	0.175	8 (24.2%)	0.723	12 (31.6%)	0.424
<i>VET/trade</i>	7 (29.2%)		11 (39.3%)		14 (48.3%)		15 (45.5%)		14 (36.8%)	
<i>Higher education</i>	11 (45.8%)		10 (35.7%)		12 (41.4%)		10 (30.3%)		12 (31.6%)	
Employment status (n=152)										
<i>Full time work</i>	10 (41.7%)	0.231	12 (42.9%)	0.350	12 (41.4%)	0.111	7 (21.2%)	0.163	6 (15.8%)	0.109
<i>Part time work</i>	5 (20.8%)		4 (14.3%)		10 (34.5%)		7 (21.2%)		12 (31.6%)	
<i>Casual/temporary work</i>	3 (12.5%)		2 (7.1%)		1 (3.5%)		1 (3.0%)		3 (7.9%)	
<i>Not in paid workforce</i>	6 (25.0%)		10 (35.7%)		6 (20.7%)		18 (54.6%)		17 (44.7%)	
Financial manageability (n=150)										
<i>It is impossible/difficult all of the time</i>	3 (12.5%)	0.181	3 (11.1%)	0.895	2 (6.9%)	0.698	5 (15.6%)	0.620	3 (7.9%)	0.375
<i>It is difficult some of the time</i>	8 (33.3%)		7 (25.9%)		6 (20.7%)		7 (21.9%)		5 (13.2%)	
<i>It is not too bad</i>	7 (29.2%)		13 (48.2%)		17 (58.6%)		13 (40.6%)		22 (57.9%)	
<i>It is easy</i>	6 (25.0%)		4 (14.8%)		4 (13.8%)		7 (21.9%)		8 (21.1%)	
Health care cost subsidies										
<i>PHI cover (n=152)</i>	22 (91.7%)	0.075	24 (85.7%)	0.242	24 (82.8%)	0.391	18 (54.6)	<0.001	32 (84.2%)	0.250
<i>PHI for this profession (n=152)</i>	19 (86.4%)	0.628	24 (96%)	0.089	22 (92.7%)	0.297	10 (55.6%)	0.001	29 (90.6%)	0.286
<i>Health care card (n=149)</i>	8 (33.3%)	0.411	10 (38.5%)	0.543	6 (20.7%)	0.027	16 (48.5%)	0.104	16 (43.2%)	0.265

†Percentage of participants who consulted this profession

‡Excluded from analysis of gender due to small cell size

Table 3. Service utilisation frequency and chronic condition diagnoses

	All professions	Acupuncture	<i>P</i>	Chiropractic	<i>P</i>	Massage	<i>P</i>	Naturopathy	<i>P</i>	Osteopathy	<i>P</i>
Number of visits (n=148)											
First visit	13 (8.8%)	3 (12.5%)		1 (3.7%)		2 (7.1%)		5 (16.7%)		2 (5.1%)	
Two times	9 (6.1%)	1 (4.2%)		0 (0.0%)		1 (3.6%)		3 (10.0%)		4 (10.3%)	
Three times	6 (4.1%)	1 (4.2%)	0.933	0 (0.0%)	0.314	0 (0.0%)	0.827	4 (13.3%)	0.008	1 (2.6%)	0.147
Four times	9 (6.1%)	1 (4.2%)		1 (3.7%)		1 (3.6%)		1 (3.3%)		5 (12.8%)	
Five or more	111 (75.0%)	18 (75.0%)		25 (92.6%)		24 (85.7%)		17 (56.7%)		27 (69.2%)	
Condition category (n=153)											
Musculoskeletal conditions	93 (60.8%)	14 (58.3%)	0.479	16 (57.1%)	0.408	20 (69.0%)	0.216	19 (57.6%)	0.408	24 (61.5%)	0.534
Mental health conditions	73 (47.7%)	9 (37.5%)	0.193	10 (35.7%)	0.115	13 (44.8%)	0.446	26 (78.8%)	<0.001	15 (38.5%)	0.124
Cardiovascular conditions	42 (27.5%)	5 (20.8%)	0.301	7 (25.0%)	0.474	10 (34.5%)	0.235	11 (33.3%)	0.259	9 (23.1%)	0.313
Gastrointestinal conditions	28 (18.3%)	6 (25.0%)	0.254	5 (17.9%)	0.594	3 (10.3%)	0.168	10 (30.3%)	0.043	4 (10.3%)	0.099
Respiratory conditions	25 (16.3%)	5 (20.8%)	0.349	6 (21.4%)	0.291	6 (20.7%)	0.324	4 (12.1%)	0.328	4 (10.3%)	0.175
Female reproductive conditions	23 (15.0%)	7 (29.2%)	0.042	3 (10.7%)	0.354	3 (10.3%)	0.323	6 (18.2%)	0.371	4 (10.3%)	0.245
Cancer or related complications	8 (5.3%)	1 (4.2%)	0.634	2 (7.1%)	0.449	1 (3.5%)	0.531	1 (3.0%)	0.453	3 (7.7%)	0.332
Diabetes mellitus (type I or II)	6 (3.9%)	0 (0.0%)	0.353	1 (3.6%)	0.698	3 (10.3%)	0.082	1 (3.0%)	0.616	1 (2.6%)	0.520
Male reproductive conditions	4 (2.6%)	1 (4.2%)	0.498	1 (3.6%)	0.558	1 (3.5%)	0.573	0 (0.0%)	0.374	1 (2.6%)	0.731
Other conditions	59 (38.6%)	9 (37.5%)	0.549	9 (32.1%)	0.292	13 (44.8%)	0.286	13 (39.4%)	0.533	15 (38.5%)	0.572

Table 4. Reasons for consultation

Reason	All professions (n=150)			Acupuncture (n=24)			Chiropractic (n=27)			Massage (n=29)			Naturopathy (n=31)			Osteopathy (n=39)		
	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree	Strongly agree/ Agree	Neutral	Disagree/ Strongly disagree
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
To seek treatment for an acute illness lasting less than one month (n=81)	33 (40.7)	6 (7.4)	42 (51.9)	5 (31.3)	1 (6.3)	10 (62.5)	6 (35.3)	2 (11.8)	9 (52.9)	5 (31.3)	1 (6.3)	10 (62.5)	3 (33.3)	2 (22.2)	4 (44.4)	14 (60.9)	0 (0.0)	9 (39.1)
To seek treatment for a long-term illness lasting more than one month (n=119)	98 (82.4)	7 (5.9)	14 (11.8)	14 (82.4)	0 (0.0)	3 (17.7)	17 (77.3)	3 (13.6)	2 (9.1)	17 (73.9)	1 (4.4)	5 (21.7)	25 (92.6)	1 (3.7)	1 (3.7)	25 (83.3)	2 (6.7)	3 (10.0)
I was dissatisfied with my conventional medical treatment and wanted to try something different (n=108)	55 (50.9)	26 (24.1)	27 (25.0)	7 (36.8)	6 (31.6)	6 (31.6)	6 (33.3)	4 (22.2)	8 (44.4)	7 (36.8)	6 (31.6)	6 (31.6)	17 (63.0)	6 (22.2)	4 (14.8)	18 (72.0)	4 (16.0)	3 (12.0)
To reduce side-effects of my current medical treatments/medicines (n=87)	33 (37.9)	16 (18.4)	38 (43.7)	3 (23.1)	2 (15.4)	8 (61.5)	3 (16.7)	2 (11.1)	13 (72.2)	7 (38.9)	3 (16.7)	8 (44.4)	14 (70.0)	3 (15.0)	3 (15.0)	6 (33.3)	6 (33.3)	6 (33.3)
To enhance the effectiveness of my current medical treatments/medicines (n=104)	73 (70.2)	14 (13.5)	17 (16.4)	13 (68.4)	2 (10.5)	4 (21.1)	9 (42.9)	2 (9.5)	10 (47.6)	16 (76.2)	4 (19.1)	1 (4.8)	20 (87.0)	3 (13.0)	0 (0.0)	15 (75.0)	3 (15.0)	2 (10.0)
To improve general wellbeing and prevent future health problems (n=140)	125 (89.3)	9 (6.4)	6 (4.3)	21 (91.3)	1 (4.4)	1 (4.4)	22 (91.7)	1 (4.2)	1 (4.2)	22 (81.5)	4 (14.8)	1 (3.7)	25 (89.3)	1 (3.6)	2 (7.1)	35 (92.1)	2 (5.3)	1 (2.6)
I was seeking holistic/natural treatments (n=125)	92 (73.6)	23 (18.4)	10 (8.0)	17 (77.3)	5 (22.7)	0 (0.0)	10 (45.5)	6 (27.3)	6 (27.3)	19 (82.6)	2 (8.7)	2 (8.7)	25 (86.2)	3 (10.3)	1 (3.5)	21 (72.4)	7 (24.1)	1 (3.5)
This type of health care suits my personal belief system (n=123)	94 (76.4)	21 (17.1)	8 (6.5)	14 (73.7)	5 (26.3)	0 (0.0)	11 (52.4)	5 (23.8)	5 (23.8)	19 (79.2)	3 (12.5)	2 (8.3)	25 (86.2)	4 (13.8)	0 (0.0)	25 (83.3)	4 (13.3)	1 (3.3)
I believe this type of health care is safe (n=137)	131 (95.6)	5 (3.7)	1 (0.7)	21 (95.5)	1 (4.5)	0 (0.0)	20 (95.2)	1 (4.8)	0 (0.0)	26 (96.3)	0 (0.0)	1 (3.7)	28 (93.3)	2 (6.7)	0 (0.0)	36 (97.3)	1 (2.7)	0 (0.0)
This type of health care gives me hope about my future health (n=126)	108 (85.7)	17 (13.5)	1 (0.8)	17 (85.0)	3 (15.0)	0 (0.0)	16 (80.0)	4 (20.0)	0 (0.0)	21 (87.5)	2 (8.3)	1 (4.2)	25 (89.3)	3 (10.7)	0 (0.0)	29 (85.3)	5 (14.7)	0 (0.0)
This type of health care gives me a sense of control about my health (n=129)	105 (81.4)	22 (17.1)	2 (1.6)	16 (80.0)	4 (20.0)	0 (0.0)	14 (66.7)	6 (28.6)	1 (4.8)	18 (78.3)	4 (17.4)	1 (4.4)	27 (93.1)	2 (6.9)	0 (0.0)	30 (83.3)	6 (16.7)	0 (0.0)
This health care professional is supportive and compassionate (n=140)	136 (97.1)	2 (1.4)	2 (1.4)	22 (95.7)	1 (4.4)	0 (0.0)	21 (95.5)	1 (4.6)	0 (0.0)	26 (92.9)	0 (0.0)	2 (7.1)	29 (100.0)	0 (0.0)	0 (0.0)	38 (100.0)	0 (0.0)	0 (0.0)

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For Peer Review