Chiropractic – Valued Healthcare for those Living with Disadvantage

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Abstract

Background: Chiropractic is a mostly privatised health profession within Australia, with people experiencing disadvantage typically having limited access due to financial barriers. However, some universities within Australia offer community outreach clinics where students provide chiropractic care to people living with disadvantage. This demographic experiences higher rates of chronic conditions including musculoskeletal complaints and requires subsidisation to access privatised care. This need also offers opportunity for the chiropractic profession to work within community healthcare teams. A mixed-methods observational study was used to investigate how the unique setting of a student chiropractic community clinic may influence the experience and outcomes of those who attend.

Methods: Three patient-reported outcome measures (PROMs) investigated client outcomes: Measure Yourself Medical Outcome Profile (MYMOP); European Five Domain Five Level Quality of Life Questionnaire (EQ-5D-5L); and the Patient Enablement Instrument (PEI). The PROMs data were analysed descriptively and inferentially. Interviews were conducted with clients who had received chiropractic care, chiropractic students, clinical supervisors and staff of the centre. Interview data were analysed using thematic analysis, and codes and themes were formed using Bronfenbrenner's ecological systems theory.

Results: Thirty-seven (37) participants completed baseline PROMs and 17 completed follow-ups after four treatments. A total of 72% of participants nominated their primary complaint as chronic. Significant change was noted in general health and wellbeing for the MYMOP, pain and disability for the EQ-5D-5L and index scores for the EQ-5D-5L suggested improved health and wellbeing. Most clients experienced higher levels of enablement post treatment. Twelve participants were interviewed, with five themes emerging from the interview data. Clients reported their lived experiences impacted their health problems and attending the clinic offered benefits beyond improvement of pain and disability.

Conclusions: Interview data suggested that these benefits were due to a combination of therapy, the setting and the relationships formed within that setting. Complementing this, PROM data suggested clients experienced better levels of health and wellbeing and decreased levels of pain and disability. Findings indicated that people who experienced disadvantage may receive broader benefits from attending community centres offering chiropractic care. Services such as chiropractic may be complementary in meeting the healthcare needs of those experiencing disadvantage.

Background

Those who live with, or experience disadvantage, suffer from higher rates of chronic conditions and comorbidities (1–3). Specifically in relation to chronic low back pain, there is a strong association between its prevalence and socioeconomic status, in high-income and low-income countries alike (4). It is also known that the management of chronic low back pain through interventions such as surgery and opioid prescription is typically ineffective for this condition (4). This poses a problem for those who live with disadvantage and do not have ready access to healthcare such as allied health, complementary and

alternative medicine that is typically privatised and inaccessible due to financial barriers. Alongside higher rates of chronic conditions and comorbidities, those from lower socioeconomic backgrounds may also experience discrimination from healthcare practitioners, potentially leading to avoidance behaviours when seeking healthcare (5, 6). These findings suggest that careful consideration must be taken when caring for individuals experiencing disadvantage as their clinical presentations are likely to be complicated by complex personal and medical histories.

Patient-centred care (PCC) and the outcomes associated with this model of care have been extensively investigated with the aim of improving patient care and cost-effectiveness of interventions (7–9). This is typically achieved by using what are described as patient-reported outcome measures (PROMs) (10). Patient-reported outcome measures allow a unique assessment of patients' individual outcomes, health and wellbeing and quality of life. Patient-reported outcome measures can be either disease-specific or more generic, with the goal of measuring outcomes that are of importance to the patient completing them. Patient-reported outcome measures have been used in several studies, investigating a wide variety of interventions as well as conditions. These measures have been used to assess treatment modalities including traditional Chinese medicine (acupuncture) (11), chiropractic (12), physiotherapy (13), spinal surgery (14), and numerous other interventions. These measures are also frequently used for specific conditions with studies using PROMs investigating outcomes for conditions such as chronic low back pain (15), mental health disorders (16), lumbar scoliosis (17) and various other conditions. While these measures have been widely utilised in several different studies, little investigation has reported on PROM usage for those who experience disadvantage in their lives, e.g., lower socioeconomic status, physical and mental disability, or a combination of these experiences. Also, why these outcomes are important and what factors might influence these outcomes.

This paper investigates the importance of the setting, when delivering chiropractic care to those living with disadvantage, and the outcomes of those who attended a chiropractic clinic within a community centre. It also highlights the usage of PROMs and a mixed-method approach for investigating health and wellbeing outcomes of those living with disadvantage and how chiropractic may provide broader benefits for this demographic, beyond the improvement of pain and disability alone.

Methods

This study examined the outcomes of a cohort of clients who attended an RMIT University student chiropractic clinic located within a community organisation known as The Wellington (TW). The Wellington is a community centre that offers a safe space where members of the community experiencing disadvantage, social or cultural isolation can meet and socialise (18). The Wellington offers a wide range of services to these community members, including healthcare, food services and social groups. All of the clients who attend TW experience disadvantage to some degree and are encouraged to meet and interact with other members of the community in a welcoming drop-in atmosphere (18). This mixed-methods observational study utilised a combination of PROMs, semi-structured interviews, and non-participant observation. The research design was based on an emerging framework of research

known as Whole Systems Research (19). The framework was deemed suitable for this investigation as it integrated quantitative and qualitative research techniques. The reason for this combined approach was to identify as many contributing factors as possible that might be associated with outcomes for participants in the study. The study was approved by the Human Research Ethics Committee of RMIT University. Approval Number 21684. Data collection took place from February 2019 until December 2019.

Patient-Reported Outcome Measures

Three PROMs were chosen for use in this investigation. They were selected based on their reliability, validity, and ability to detect change across time. The first PROM was the Measure Yourself Medical Outcome Profile (MYMOP). The MYMOP was developed with the aim of allowing the respondent to nominate symptoms of their primary health complaint and an activity in their day-to-day lives impacted upon because of that symptom (20). This was important, as it allowed the respondent to choose symptoms and an activity that was specifically important to them, rather than choosing from a list of options. The MYMOP has been used in several studies in the past. Some of these include investigating the outcomes of patients receiving hip arthroplasty (21), traditional Chinese medicine for long-term conditions (11) and inpatients suffering from acute exacerbations of chronic bronchitis (22). The MYMOP also asks the participant to list any medication they are taking and how important it is that they reduce medication intake or how important it is that they avoid taking medication if they are not currently taking any. Due to the MYMOP's usefulness in measuring change in chronic conditions and its measurement of patient-specific individual outcomes, it was deemed appropriate for use in this study.

The second PROM chosen for this study was the European Quality of Life Five Domain Five Level Health Questionnaire (EQ-5D-5L). The EQ-5D-5L is a health-related quality of life outcome measure that asks the respondent to nominate, on a five point scale, how good or bad their health is pertaining to five different domains of health (23). These domains are "Mobility", "Personal Care", "Usual Activities", "Pain and Discomfort" and "Anxiety and Depression". Accompanying these domains is a 100-point visual analogue scale known as the European Quality of Life Visual Analogue Scale (EQVAS). The EQVAS asks the respondent to nominate on this scale how good or bad their health had been that day. The EQ-5D-5L has been used in a number of studies investigating outcomes of patients with chronic conditions (24), knee osteoarthritis, chronic osteoarthritis, low back pain or cancer pain (25) and to determine the cost-effectiveness of care received (26). The EQ-5D-5L was chosen over the first version (EQ-5D-3L) due to its higher sensitivity to change (27). It was also chosen as a suitable adjunct to the MYMOP. Because responses from the MYMOP are individual, based on nominated symptoms and activities, it was deemed important to also have a tool that measured outcomes that were the same for all participants.

Baseline scores from the clients' EQVAS were also compared with population normative data of the South Australian population (28). This was to determine if there was a statistically significant difference between the wellbeing of those living with disadvantage and those who do not.

The third measure was the Patient Enablement Instrument (PEI). The PEI is a PROM that measures the enablement of patients as a result of attending a health service (29). Enablement is considered as

empowerment of the patient and their ability to comprehend, understand and cope with their particular illness or condition (30). The PEI asks the respondent six questions pertaining to their consultations over the past weeks or months. The PEI has been used within the literature to assess the enablement of patients suffering from chronic musculoskeletal (MSK) pain(31) and it has been suggested that practitioner empathy is an important factor in order to enable patients, in both high and low-socioeconomic areas (32). In addition, as this was an observational study, it was important to include a PROM that asked respondents questions regarding outcomes that pertained specifically to the treatment they received as opposed to external factors.

The MYMOP and EQ-5D-5L were administered at baseline to all clients who agreed to participate in the study. Follow-up took place at two weeks or after a total of four treatments with the student chiropractors, whichever came first. At follow-up the MYMOP and EQ-5D-5L were again administered, this time along with the PEI.

All data from the MYMOP and EQ-5D-5L were analysed using paired-sample t-tests where data were normally distributed. Where data were not normally distributed, Wilcoxon signed-rank tests were used. Data from the PEI underwent descriptive analysis only.

Interviews

The other major component of this study was to interview those involved at TW. This included clients, student chiropractors, chiropractic supervisors and staff of TW. The reason groups apart from the clients were interviewed, was to assist in determining what components of care were important to clients: how these components were considered to benefit clients from the carers' perspective, what other factors may have influenced client outcomes and to what extent TW, as a setting, may have influenced these outcomes. Interviews were semi-structured in their design and pre-determined prompts were utilised where necessary. Thematic analysis utilising an inductive approach (33), was employed to analyse interview data and a constant comparative approach was used throughout. This meant data were analysed and coded after each interview and then compared throughout data collection (34–36). Non-participant observation was used as a way of gaining a deeper understanding of the interview findings (37). Non-participant observation was used to help determine the influence of TW as a setting and to describe the different interactions that took place in the common area/waiting room between those at TW who sought chiropractic care and to allow for a deeper understanding of other qualitative and quantitative findings. Non-participant observational self-reflections of the author (DMH) were integrated with interview data. Interviews were conducted until data saturation was achieved.

To minimise bias when reporting interview findings, an appropriate theoretical framework was selected for the development of codes and themes. The theory selected was developed by Bronfenbrenner and is known as ecological systems theory (38). Initially this theory was frequently used in studies investigating childhood development. However, in recent years, the theory's use has expanded to include a number of studies such as those investigating Indigenous populations (39) and in promoting sustainability of community-based healthcare (40). As Bronfenbrenner's ecological systems theory has been used in

studies that involved disadvantaged populations as well as community-based healthcare settings, it was deemed as an appropriate theory to apply to this study's interview findings.

Bronfenbrenner's ecological systems theory states that the development of any individual is influenced by five systems that comprise an individual's ecosystem. These five systems are described as: (1) the microsystem, a person's immediate settings in which they participate; (2) the mesosystem, a collection of microsystems within a person's life that influence each other; (3) the exosystem, external settings that the individual is not involved in but is influenced by; (4) the macrosystem, the overarching influence of a society's beliefs, religions, laws and morals; and (5) the chronosystem, how the passage of time may influence a person's life, either past, present or future (38).

Bronfenbrenner's theory discusses the importance of a setting and its impact on the development of the people within it. Bronfenbrenner's theory proposes that if a setting has indirect links to other settings of power, then this can directly influence the potential of development of the person involved in those settings. Bronfenbrenner's theory describes how the greater the indirect links a setting such as this might have, the greater its developmental potential (38). The Wellington is a prime example of a setting that provides developmental potential for its clients by offering a multitude of opportunities such as healthcare, food drops and social groups for the clients who attend.

Results

A total of 37 clients completed PROMs at baseline. Follow-up was possible with 17 of these clients. Of those 37 clients, 16 were male and 21 were female. The average age of clients was 52 years. Data are forthwith referred to as mean $\pm$ standard deviation.

Patient-Reported Outcome Measure Data

Significant change was detected between baseline (3.94 ± 1.22) and follow up (3.2 ± 1), ($t(16) = 2.84$), ($p = 0.012$) MYMOP profile scores (see Fig. 1). When comparing baseline MYMOP profile scores with those of a previous study conducted in another university teaching clinic that serves the general population, there was a statistically significant difference between baseline MYMOP profile scores ($t(34) = 2.6$), ($p = 0.012$) (41). It was found that at baseline, 72% participants reported attending TW for a problem that was chronic in nature (see Fig. 2) and 75% of clients stated that they were not currently taking any medication to assist with their primary symptom. More than half of the clients in this study stated that avoiding medication usage for their symptoms was of some importance to them.

MYMOP Profiles Scores at Baseline and Follow-up N = 17

Figure 1

Measure Yourself Medical Outcome Profile Scores at Baseline and Follow-up. The box represents 95% C.I.; solid lines within the boxes are median values; X refers to mean values; whiskers refer to maximum and minimum values.

Chronicity of Primary Symptom

Figure 2

Chronicity of Primary Symptom – bars indicate frequency of reported chronicity of primary symptom.

The assumption of normality for the five domains of the EQ-5D-5L was not satisfied for any of the domains, as assessed by Shapiro-Wilk test ($p < 0.05$). Wilcoxon signed-rank tests showed no significant differences between baseline and follow-up for the EQ-5D-5L domains of “Mobility” ($p = 0.589$), “Personal Care” ($p = 0.414$), “Usual Activities” ($p = 0.314$) and “Anxiety and Depression” ($p = 0.608$). However, a statistically significant change was noted for the domain of pain and discomfort ($p = 0.014$).

A one-sample t-test was used to determine if there was a statistically significant difference between this study’s EQVAS scores (59.57 ± 22.24) and McCaffrey et al.’s study (78.55 ± 15.71). There was a statistically significant difference between baseline EQVAS scores ($t(36) = -5.19$), ($p = 0.0005$) (28).

Baseline EQ-5D-5L profile scores were used to calculate index values which is a single number that reflects how good or bad a respondent’s health was. These index scores are based on value sets provided by the EuroQol Research Foundation and are only available for some countries (42). A value set for Australia is not currently available and so the value set for the United Kingdom was used instead to determine index scores for this study. The United Kingdom value sets were used to determine this study’s index scores due to the similarity of their health and vitality indices according to the Australian Institute of Health and Welfare (43). A paired-samples t-test was used to determine if there was a statistically significant change between baseline (0.48 ± 0.27) and follow-up (0.57 ± 0.30) EQ-5D-5L index scores. Data were normally distributed, as assessed by Shapiro-Wilk test ($p > 0.05$). There was a statistically significant change noted in baseline and follow-up EQ-5D-5L index score ($t(16) = -2.3$), ($p = 0.033$) (Fig. 3).

Index Scores at Baseline and Follow-up $n = 17$

Figure 3

European Quality of Life Five Domain Five Level Index Scores at baseline and follow-up. The box represents 95% C.I.; solid lines within the boxes are median values; X refers to mean values; whiskers refer to maximum and minimum values.

Seventeen participants completed the PEI at follow-up. While not all clients who completed the PEI experienced improved scores pertaining to enablement, the majority did (Table 1).

Table 1
Patient Enablement Instrument Responses n = 17

Question	Much better/more n (%)	Better/more n (%)	Same or less n (%)
Able to cope with life	5 (29.4)	6 (35.3)	6 (35.3)
Able to understand your illness	6 (35.3)	8 (47.1)	3 (17.6)
Able to cope with your illness	7 (41.2)	7 (41.2)	3 (17.6)
Able to keep healthy	4 (23.5)	6 (35.3)	7 (41.2)
Confident about your health	6 (35.3)	6 (35.3)	5 (29.4)
Able to help yourself	6 (35.3)	9 (52.9)	2 (11.8)

Interview Findings

Twelve interviews were conducted with participants, including a mixture of clients, chiropractic students, chiropractic supervisors and staff at TW. From the interview findings codes were developed using Bronfenbrenner's ecological systems theory (38). A total of five themes were developed, each in relation to one of Bronfenbrenner's five systems. Non-participant observations assisted with the development of these themes and codes and allowed for greater context during the analysis of interview data.

A Patient-Centred Approach for Clients. The first theme was titled *A Patient-Centred Approach for Clients* and was developed in relation to what is known as the microsystem (Table 2). This theme comprised three codes that were related to how clients experienced chiropractic care at TW, how they were treated at TW and how TW acted as the primary setting for this study. The first code was *The Client Experience at The Wellington*. This code was synthesised from comments made by participants regarding the delivery of chiropractic care by students and the way in which this type of care was delivered. These comments were all related to events, relationships and interactions that took place because of RMIT University's and TW's agreement to offer chiropractic to the clients of TW and the education that students receive at RMIT University.

Table 2: Themes and descriptions

Themes and Descriptions

Ecosystem	Theme	Summary of Theme
Microsystem	A Patient-centred Approach for Clients	A space offering positive social interaction and support for the clients who attend TW.
Mesosystem	Clients are Complex	Mobility and function are important to clients as it enables them to participate in the activities of daily living.
Exosystem	Trust	Meaningful relationships of trust were formed between clients of TW and RMIT chiropractic students.
Macrosystem	The Cost of Being Disadvantaged	Pain management and physical mobility remained the primary focus for clients with chronic conditions
Chronosystem	Looking to the Future	The chiropractic service at TW has been available at low or no cost to disadvantaged members of the Collingwood community since 2004. Several clients depend on this care to get through their daily lives with minimal discomfort.

“Uhm, well I need the therapy, like it helps my body. But I could, it just, the management and people and, and the, and people from RMIT are all lovely...” – Client of TW.

The second code was *Client Treatment Protocol at The Wellington*. Interview findings suggested that students used a patient-centred approach when treating clients at TW. This was identified in comments made by clients, student practitioners and clinical supervisors alike. It was also found that clients preferred a lower-force approach to treatment involving home-exercise and advice, hand-held chiropractic adjusting devices and soft tissue therapies.

“...I know we’re not sort of, counsellors, per se, sort of thing. But them just, sort of, venting, uhm, can help them, uhm, I’ve had a few that sort of talk about the stress and then they get into the treatment, and they just relax and that’s probably the best outcome.” – Chiropractic Student at TW.

The third code in this theme was *The Wellington as a Setting*. The Wellington was identified as an important service for the community. It offered a place for individuals within the community to congregate and form meaningful and genuine relationships with others, helping battle the social isolation some clients may experience. It was also identified as an important learning experience for students who treated clients at TW.

“I know mental health’s - a lot of old blokes like myself think it’s a bit of a wank, but the mental health issue is having someone to talk to and the community environment was really helpful.” – Client of TW.

The findings associated with this theme demonstrated that clients attending TW for chiropractic care experienced benefits beyond improvements in pain and disability. Clients described that the clinic offered hope for their future and how their mental health had improved because of attending. It was also reported that clients who attended the chiropractic clinic at TW experienced PCC from the students who treated

and cared for them. The Wellington was described as important for the clients who attended this setting. Consistent with the description on the TW's website, that it *encourages to meet in groups and interact with others who are in the end*, interviewed participants also discussed how TW as a setting provided a sense of community and an opportunity to simply chat with someone.

Clients are Complex

The second theme was established using Bronfenbrenner's mesosystem (Table 2). This second theme was titled *Clients are Complex* and was generated from codes pertaining to benefits and reasons that clients attend TW, the impact that clients' health problems had upon them and how the clients experienced chronic conditions and comorbidities. Findings under this theme indicated that clients valued the improvement of their condition and when this was not possible, maintaining their current levels of function was noted – or some such similar word. Clients placed great value in being able to improve their physical mobility and function as it meant they were able to continue participating in their daily activities. It was also reported that in some cases clients' health problems had significant impact upon their lives which meant that they needed to plan their day-to-day lives and their future living around their complaints. Consistent with findings from the PROMs, interviewees reported that clients frequently lived with chronic conditions, comorbidities, and complex personal and medical histories.

The first code in this theme was *Benefits and Reasons for Attending Chiropractic at The Wellington*. The maintenance or improvement of physical mobility and function to complete activities was found to be of importance to clients. These findings were individual to each patient. Clients continued to return to TW at high rates according to staff. It was reported that not all clients may have received improvement in their presenting health problems, according to their patient files.

"Well, just keep maintaining it or maybe eventually it might get a little bit better." – Client of TW

The second code was *Impact of Health Problems on Clients' Lives*. Clients discussed how their individual health problems impaired their ability to participate in their daily activities. Clients also discussed how, in certain circumstances, they needed to plan for the future, as their health conditions were chronic. One client was aware of the consequences of their condition and had to make preparations surrounding their work-related activities.

"That's ah, that's difficult. Uhm, getting out of bed's been difficult." – Client of TW.

The third code in this theme was *Chronicity and Multiple Conditions*. Clients reported having chronic conditions. Supervisors, students, and clinical supervisors reported that some clients presented with not only physical conditions but also mental health problems. It was also reported that clients might present with more than one condition and that they sometimes had complex medical and personal health histories.

"Ah, physically and mentally, you know, a lot of things going on in their life and/or their bodies that make their treatment in some ways, a bit more challenging..." – Chiropractic Student at TW

Trust

The third theme was titled *Trust* and was based upon what Bronfenbrenner described as the exosystem (Table 2). This theme was produced from codes surrounding the relationships clients formed with those at TW, students and their delivery of care and clients' experience with external healthcare providers. In the first code, *Relationships*, interview respondents discussed how important trust was as a key component of forming and maintaining genuine relationships with the clients at TW. Clients described how they appreciated the care they received at TW and how they particularly valued students who were genuine in their approach to caring for clients.

"So, it's been really good. Not just for the treatment side of things, but also the kids that the, uhm, the students, ah, are affable, they're, they're talkative." – Client of TW.

The second code was *Student Delivery of Chiropractic Care at The Wellington*. Clients acknowledged that they did prefer some students over others. However, they stated how they were happy with the care they received from all students. Clients preferred students who were genuine in their approach to treatment and communication and preferred to be treated as an individual and not a number. Clients made bonds with their student practitioners over short periods of time and were understanding that students needed to move on for various reasons.

"...you can see that they're thinking about what they're doing and they're making good choices." - Client of TW.

In the third code, *Client Experience with External Healthcare Providers*, clients described how they perceived the care they received at TW as being separate from healthcare delivered/provided outside this setting, although clients acknowledged how healthcare providers work together in serving the betterment of clients' health as their common goal. While most clients did not report discrimination, one client did report that they had experienced discrimination from other healthcare providers external to TW in the past.

"Uhm, they're, they're happy with it, as long as I'm happy. If I get the benefit out of it, even if it's just a small token." – Client of TW.

The Cost of Being Disadvantaged

The fourth theme was titled *The Cost of Being Disadvantaged* and was formed using Bronfenbrenner's macrosystem (Table 2). This theme was constructed by two codes surrounding *Clients Experience with Medication* and the financial barriers they faced when trying to access primary healthcare such as chiropractic at TW. In the first code, similar to the findings from the PROMs, all clients reported that they preferred to avoid taking medication for their complaint, primarily because they did not find their usage

effective in managing their symptoms for an extended period of time. While they did prefer to avoid medications, several clients were still using them for a range of conditions, including anxiety and depression.

"But now since I'm on anti-depressants, uhm, and my social anxiety's largely gone away, uhm, I find it a lot easier, just to be part of society." – Client of TW.

Clients also reported some frustration that services like TW were not more widely available. In the second code, *Financial Barriers Impair Access to Chiropractic Care*, they described that healthcare such as chiropractic should be available to a wider population, regardless of income status. Clients also reported that they were appreciative of home care and advice that was provided by students, as this enabled them to manage their complaints until their next appointment.

"...it just offers such a wonderful, wonderful opportunity for people to get the treatment." – Client of TW.

Looking to The Future

The final theme was titled *Looking to the Future* and was generated using what Bronfenbrenner described as the chronosystem (Table 2). This theme comprised codes that described how TW was an important setting for those who live within the local community, how it acts as a place that addresses their healthcare needs and how the clients were hopeful regarding the future of their health conditions. Also, that they planned to continue using TW as a place to address these needs.

The first code in this theme was *The Wellington as a Setting Over Time*. In this code clients reported how they relied on TW and that they hope for it to continue as a community service for years to come. It was stated that the change in location was seen as a positive for clients and staff described how the move would allow for an expansion of services such as the chiropractic offered there. Students only offered minimal responses regarding change they wanted to see at TW, such as better hygiene practices and free parking.

"Yeah. To me it's really just, yeah. Expanding on services that we really have. Now, not really re-inventing the wheel, but just, yeah, finding the time and the space to do more, for more people." – Staff Member at TW.

In the second code, *Future of Clients and Their Healthcare Needs*, Clients stated that they were positive regarding the future of their health conditions. It was expressed by clients how they understood their chronic conditions may never resolve. However, they were determined to continue seeking care as they found value in maintaining the current state of their condition or at least maintaining current levels so that their condition did not deteriorate.

"If I get back, well, health-wise not too good. But we'll get there. But If I can get back into having treatment here in say the next, I'm hoping next 6 weeks. Then, then I'll feel as if I'm on the road to recovery." – Client at TW.

Discussion

The literature suggests that those who experience disadvantage have higher rates of chronic conditions and comorbidities when compared with the general population (44). This study's findings aligned with the literature, as a vast majority of the clients nominated having had their primary symptom (as nominated on the MYMOP) for greater than three months in duration. This was also iterated in the findings with all clients interviewed expressing how they lived with and managed their chronic conditions.

Data from the MYMOP indicated that many of the clients preferred to avoid using medication to manage their symptoms. This is not congruent with the literature, which suggests that it is common for people experiencing chronic MSK conditions to also have long-term opioid prescriptions to manage their pain (45). Interview findings from client participants suggested that the reason for this low rate of medication usage among the clients at TW was because they found the usage of pain medication to be ineffective in the management of their symptoms. Of those who did use medication for the management of symptoms, the majority described that it was of some importance to them that they reduce their medication usage where possible.

Data from the MYMOP and EQ-5D-5L indicated that clients experienced a statistically significant improvement in their health and wellbeing after a short course of treatment at TW. The literature suggests that those with complex care needs require a combination of both healthcare and social care (46), and the outcomes of interviews at TW were congruent with these findings. The social aspects of attending TW were clearly of great importance to clients, with some clients even suggesting that this social interaction improved their mental health and gave them hope for the future.

Study comparisons indicated that clients of TW experienced significantly poorer levels of health and wellbeing when compared to MYMOP scores from another university teaching clinic (41) and, when comparing EQVAS scores to population normative data for the South Australian Population (28). The average age of participants in TW study was over 50 and this may, in part, account for the poorer levels of health and wellbeing described by clients at TW as those who are older and experience disadvantage are reported to typically experience higher rates of chronic back pain (47).

Another pertinent finding of this study was that favourable levels of enablement were experienced by the clients who attended TW, as captured by the PEI. The literature suggests that those who experience disadvantage also tend to have decreased levels of enablement (48). The findings of favourable levels of enablement are positive and were iterated by the interview data. Clients expressed that because of their treatments they were better able to manage their conditions even when students were absent from the clinic. It was also reported that clients valued being given home exercise and advice for when their conditions had acute exacerbations and they had to wait until their next consultation.

Clients described the importance of improved or maintained levels of physical mobility and function. It was reported that because of their care at TW they were better able to complete their individual daily tasks. The social components of attending TW and being able to receive care simultaneously were

particularly important for the health of the clients of TW. This finding is consistent with the literature which describes an association between those experiencing social isolation and disadvantage, and having decreased levels of physical mobility, particularly in older adults (49). This suggests that the social components of attending TW may be, in part, responsible for these findings.

Limitations

This study had several limitations. Follow-up with clients only occurred after a short timeframe and there was no further follow-up. This made it difficult to determine if the benefits of attending the clinic were long-lasting or only temporary, although, to some extent, interview data suggested that benefits were long-lasting. There was also a relatively small sample size of both baseline and follow-up PROM data. It is important not to assume that benefits experienced by clients were a direct result of chiropractic treatment. This was an observational study as distinct from an interventional study. Other factors may have influenced these outcomes such as natural history of a condition, acute exacerbations of a chronic condition or the influence of TW setting, as mentioned previously. There may have been some unavoidable inherent bias by respondents as there could have been an expectation to provide favourable responses in a setting they clearly appreciated, depended upon and where they felt welcomed. Another limitation is that client interviewees were not new clients to the clinic, interview findings suggested they were long-standing clients who continued to return to the clinic due to the benefit they personally received. This may account for some discrepancies between the quantitative and qualitative findings. However, this did allow for a deeper exploration into the aspects of care, such as a sense of community and the setting, as these clients had greater opportunity to experience this. Lastly, it is important to acknowledge that the lack of any control group increases difficulty drawing conclusion from the data.

Recommendations for Future Research

While the clients who were interviewed in this investigation were all long-term clients of TW, PROM data revealed the majority of those who attended TW throughout the data collection period were a transient population. This meant that many clients did not return for subsequent visits and were unable to complete follow-up outcome measures as a result. Future research should therefore allow more time for data collection to take place. To increase sample size and data collection, it is also recommended that the inclusion criteria be expanded. In this instance TW offered other services such as osteopathy and traditional Chinese medicine. To include clients who used these services would have resulted in a larger data sample. Similarly, if there are other settings that offer comparable services to those in need it would, where possible, be advisable to include them in data collection. This would allow for a comparison between settings and to see if outcomes may differ as a result. This study was only able to obtain interviews from existing clients at TW and while they were able to provide rich answers, it would also be valuable to see how new clients experience TW and to see if these responses differed.

Conclusion

The findings of this investigation indicated that TW as a setting, and the chiropractic clinic operating within it, provides a nurturing space for those living in disadvantage to experience meaningful physical and psychosocial health outcomes. Outcomes important to the clients of TW varied on an individual basis, although analysis assisted in identifying codes and themes surrounding these outcomes. Genuine relationships with their practitioners, the maintenance and improvement of their symptoms and benefits associated with mental health were all outcomes that were identified as important to the client. Patient-reported outcome measure data supported these findings, with improved scores of wellbeing noted in MYMOP scores and in the EQ-5D-5L index scores. A key component of enablement requires a healthy therapeutic relationship between the practitioner and patient (Mercer et al., 2008). Given the high level of enablement experienced by clients of TW, as demonstrated by PEI scores, it is reasonable to assume that the genuine relationships experienced by interview participants are also occurring between new clients to the clinic and their student practitioners.

Finally, TW as a setting provides a gathering space which enables clients to interact in a supportive, welcoming setting as an integral part of the treatment they receive. Beyond the reported improvements in physical mobility and reduction in pain it also enables the development of friendships and nurtures a sense of belonging and community. All the groups interviewed as part of this study expressed how important TW is as a place for those experiencing disadvantage as it offers a safe space with many resources, including chiropractic care. This presents an opportunity for the chiropractic profession, one that could potentially see the profession starting to become a part of the conversation surrounding the healthcare needs of those living with disadvantage.

Abbreviations

EQ-5D-5L	European Quality of Life Five Domain Five Level Health Questionnaire
EQVAS	European Quality of Life Visual Analogue Scale
MSK	Musculoskeletal
MYMOP	Measure Yourself Medical Outcome Profile
PCC	Patient-Centred Care
PEI	Patient Enablement Instrument
PROMs	Patient-Reported Outcome Measures
TW	The Wellington

Declarations

Ethics Approval and Consent to Participate

Ethical approval was approved by the Human Research Ethics Committee of RMIT University. Approval number 21648.

All participants gave their informed written consent to participate in this study.

Consent for Publication

Not applicable.

Availability of Data and Materials

The datasets generated and/or analysed during the current study are not publicly available due to reasons of sensitivity surrounding individual human data but are available from the corresponding author on request. Data are being stored under controlled access at RMIT University.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

DMH: concept development; study design; data collection; data analysis; data interpretation; manuscript draft; manuscript revision; approval of final manuscript.

AKD: study design; data analysis; data interpretation; manuscript revision; approval of final manuscript.

GK: study design; data interpretation; manuscript revision; approval of final manuscript.

DV: study design; data interpretation; manuscript revision; approval of final manuscript.

BP: concept development; study design; data analysis; data interpretation; manuscript draft; manuscript revision; approval of final manuscript.

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Figures

Figure 1

Measure Yourself Medical Outcome Profile Scores at Baseline and Follow-up. The box represents 95% C.I.; solid lines within the boxes are median values; X refers to mean values; whiskers refer to maximum and minimum values.

Figure 2

Chronicity of Primary Symptom – bars indicate frequency of reported chronicity of primary symptom.

Figure 3

European Quality of Life Five Domain Five Level Index Scores at baseline and follow-up. The box represents 95% C.I.; solid lines within the boxes are median values; X refers to mean values; whiskers refer to maximum and minimum values.