

ORIGINAL RESEARCH

Health Outcomes of Pediatric Patients Undergoing Chiropractic Care Since Birth: A Retrospective Analysis

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Abstract

Background: Chiropractic care is reported to be the most common complementary and alternative (CAM) intervention for children, with wellness care cited as the most common reason for chiropractic visits. There are limited studies on patients that have been under long-term chiropractic care - especially since birth. The purpose of this retrospective case series is to report on the benefits of wellness based chiropractic care for pediatric patients.

Methods: A structured health questionnaire was generated, each family was interviewed and detailed notes were taken as it pertains to general information about the child, the related pregnancy, birth of the child and health challenges during infancy and childhood.

Results: All five children participating in the study were under chiropractic care to manage vertebral subluxations since birth and all mothers were under care prenatally. The age range of three males and two females was 9-13 years. All mothers were under chiropractic care while pregnant and all mothers reported feeling better during their pregnancy with a decrease in symptoms such as low back pain, extremity numbness, and generalized soreness. Four of the children were born vaginally with no complications and one was delivered via an obstetrician recommend cesarean section due to an anticipated larger than normal baby. All children were either fully or partially vaccinated and all were breastfed. All of the children experienced healthy childhoods without suffering from typical childhood illnesses. All reported to have a healthy diet, exercised regularly and slept well. All parents reported their child's health to be better than other children of the same age.

Conclusion: Parents in this study reported that their children experienced a higher level of health and quality of life than other children of the same age. These data show the need for continued studies into the health outcomes following long term chiropractic management before, during and after birth.

Key Words: *Chiropractic care, pediatrics, wellness, vertebral subluxation, quality of life*

Introduction

Complementary and Alternative Medicine

Chiropractic care is typically mentioned under the umbrella of complementary and alternative medicine (CAM) that also includes herbal medicine, vitamins, therapeutic massage, acupuncture, homeopathy, yoga and energy healing. The U.S. Department of Health also provides several different definitions concerning the different forms of CAM which in

general pertains to alternative systems of medical practice, mind/body interventions, biologic therapies, manual healing methods, energy treatments, herbal remedies, and diet and nutrition modifications.¹ In the CAM usage study by Eisenberg, the US adult population use of CAM therapies increased from 33.8% in 1990 to 42.1% in 1998.²

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In the 2012 Harris systematic review and update to the prevalence of CAM use, a total of 47 publications were reviewed. The surveys indicated that CAM was frequently used and that prevalence estimates varied widely between the 15 countries; the prevalence of all types of CAMs use ranged from 9.8% to 76%.³

In the 2007 study by Barnes, the National Health Statistics Report states that CAM use has remained steady with 4 in 10 adults and 1 in 9 children. In this same study, chiropractic care is mentioned as the most common CAM therapy for children.⁴ In the more recent CAM usage article concerning research challenges, the 2015 Lucas paper states that the demand for CAM therapies has increased in the adult population with the prevalence ranging from 1 in 8 adults, and has remained steady for the pediatric population with 1 in 9 children using CAM therapies, however the data used for both the pediatric and adult usage numbers are from 2008.⁵ The 2015 National Health Statistics Report estimates the usage of CAM therapies among children age 4-17 to be steady from 2007 (12%) to 2012 (11.6%).⁶

Chiropractic Care

In the 2000 paper by Lee, medical doctors and chiropractors created a survey for Boston area chiropractors to complete. Of the surveys sent, 90 chiropractors responded (60%) to the questions that dealt with practice patterns, training in pediatric care, and peer recommendation to pediatric providers. The pediatric specific training questions concerned immunization recommendations and whether the chiropractor would treat a 2-week old neonate with a fever. These chiropractors saw an average of 122 patients weekly with 11% being children, with an average of \$16 billion spent on pediatric chiropractic care in the Boston area in 1998. The respondents represented several different chiropractic affiliations and organizations such as the International Chiropractors Association (ICA) and the American Chiropractic Association (ACA).⁷ The Lee et al article is also the only one concerning the pediatric population usage of chiropractic that is mentioned in the 2002 Breuner article about complementary medicine in pediatrics. This is due in part to the lack of other pediatric CAM studies during that time. The author, a medical doctor, found that the major evidence that supports chiropractic treatment was concerned with back pain which did not commonly pertain to the pediatric population. The author also focused solely on acupuncture, homeopathy, massage, and chiropractic and within each of those therapies, asked questions pertaining to pattern usage for adults and children, basic theories for each treatment, studies demonstrating effectiveness, potential complications, and referral resources. Only randomized control trials and placebo studies were evaluated as it pertains to the effectiveness of chiropractic with the author's consensus being that more research is needed into the pediatric population's use of CAM therapies.⁸

In a cross-sectional descriptive survey in 2010 by Alcantara et al, 548 chiropractors spanning the United States, Canada, and Europe participated in answering questions about demographics, practice characteristics, chiropractic technique, and common pediatric complaints.⁹ This added a more substantial amount of data than the Lee et al paper

published 10 years earlier.⁷ The Alcantara et al survey data indicated that the participating chiropractors saw an average of 133 patients per week with 21% of those patients being children under the age of 18 years. This survey was sent to members of the International Chiropractic Pediatric Association (ICPA) which is listed as a limitation in the conclusion however, there were 548 chiropractors that responded. The survey discussed the main techniques employed by the participants with those techniques being Diversified, Activator methods, Thompson, Craniosacral, Gonstead, Sacro-Occipital Technique, and Chiropractic Biophysics. This is also the landmark study to mention the common pediatric conditions addressed by chiropractors.

Wellness care was listed as the most common reason for care with 16.7% response, and ear/nose/throat issues was close behind at 15.6%. The Alcantara study provides an update to the main reasons that parents seek chiropractic care for their children.⁹ Previous data that is more commonly cited is from the 1995 Spiegelblatt study on alternative medicine use in children, and the 1999 study by Zollman concerning what is CAM.^{10,11} Both of these studies are referenced in the Breuner paper, and list the top reasons for pediatric chiropractic visits as non-musculoskeletal complaints such as respiratory issues, ear/nose/throat, colic and enuresis.⁸

Wellness Care

As the use of the terms wellness care and maintenance care become more common within chiropractic practices with both adult and pediatric patients, papers that have been written about the concept have attempted to define these terms. The Council of Chiropractic Guidelines and Practice Parameters defined stages of care into acute and chronic, or recurrent conditions and wellness. The chronic/recurrent conditions differ from wellness care in that those chronic issues are not necessarily expected to resolve completely and are still deemed medically necessary.¹² The Dehen paper also uses the terms wellness care and maintenance care interchangeably, making note that both definitions of that type of care are not "medically necessary."¹² Taylor's article about the physiological basis of maintenance care in chiropractic states "the purpose of wellness care is to optimize the levels of function and provide a process of achieving the best possible function and health".¹³ In this sense, this type of care includes chiropractic adjustments, nutritional counseling and lifestyle coaching.¹² Johnson et al in the paper about the role of chiropractic and the determinants of health, makes note that wellness care in the allopathic profession is defined differently in that there is more focus on the early detection of diseases through diagnostic testing.¹⁴ For the purposes of this paper, both wellness care and maintenance care will be used as defined by the CAM disciplines.

Maintenance Care

Two articles about the Nordic maintenance care program used by Danish chiropractors' states that the purpose of this type of program is to take patients who are no longer in acute care or pain-based situations and to hopefully provide the prevention of recurrence (secondary prevention) and/or maintain a desired level of function (tertiary prevention).^{15,16}

Those prevention stages incorporate the public health terms of secondary and tertiary prevention. Myburgh developed a survey for Danish chiropractors to further delineate the use of maintenance care in the profession by focusing questions on the purpose and rationale of the benefits of maintenance care, patient characteristics, and the initiation and termination of those care plans.¹⁶

The survey results confirmed what previous studies by Cifuentes found; maintenance care plans offered by chiropractors for work related back pain issue had patients with reduced recurrence rates.¹⁷ Maintenance care plans were only offered to patients whose initial chief complaint was of musculoskeletal origin with the care plans being individualized to the patient's chief complaint, physical examination, and history.^{15,16} In Leboeuf's article about maintenance care in chiropractic, she also attempts to provide an agreed upon definition and offers a few such as (1) "appropriate treatment directed toward maintaining optimal body function. This is treatment of the symptomatic patient who has reached pre-clinical status or maximum medical improvement, where condition is resolved or stable" (2) "a regimen designed to provide for the patient's continued well-being or for maintaining the optimum state of health while minimizing recurrences of the clinical status".¹⁸

As mentioned earlier, there has been a shift in the reasons why parents take their child to a chiropractor. It is now more common for parents to seek wellness care for their children. In the Astin study in 1998, it was mentioned that parents are seeking CAM therapies not because of their dissatisfaction with medicine, but because they have different health and wellness beliefs and views.¹⁹ This wellness care shift was also noted and first described even earlier in 1994 by Ebrall who noted that wellness care was a reason parents brought their children to a chiropractor in the study describing 320 Australian adolescent patient presentations.²⁰ In the study about triage and case presentations in a pediatric chiropractic office, Rubin examined 48 new patient files and 1634 existing patient files, noting which new patients needed immediate referrals to other health care providers and what new complaints in existing patients warranted the same referrals. In the analysis of the patient data, 8 or 20% of those new patients presented for wellness care.²¹

A survey of health promotion activities associated with maintenance care found that 90% of the 658 surveyed chiropractors agreed that the purpose of maintenance care was to optimize health, 88% agreed it was used to prevent conditions from developing, 86% agreed it was palliative care, and 95% agreed it was used to minimize recurrence or exacerbations.²² Both this survey by Rupert and the maintenance care article by Leboeuf use the same definition of maintenance care mentioned earlier in this article, which was first defined by Mitchell as "a regimen designed to provide for the patient's continued well-being or for maintaining the optimum state of health while minimizing recurrences of the clinical status".^{18,22,23}

A survey of 956 European chiropractors analyzed the care of children from birth to adolescence to characterize the age of the patients, negative side effects, doctor opinions on treatment, conditions seen, and the care plan per condition.

Children represented 8.1% of the patient population with the common conditions at presentation being skeletal or neurologic in nature. One interesting note from this survey is that the terms "wellness and prevention" were not considered conditions for pediatric patients to be seen. Because those terms are not recognized medical conditions and are not clearly defined within the chiropractic profession, the classification of conditions by a medical doctor from this survey did not include those terms. This is clearly explained in the article with the mention that the need for further delineation of those terms is necessary within the chiropractic profession.²⁴

There are limited studies on patients that have been under long-term chiropractic care especially since birth. The purpose of this retrospective case series is to begin to add to the data concerning the chiropractic care of children as well as documenting through surveys and self-reported health questionnaires, the benefits of a wellness based chiropractic care plan for pediatric patients.

Methods

A structured health questionnaire form was generated at the onset of the study and each family was interviewed using a structured health questionnaire, and detailed notes were taken as it pertains to general information about the child, the pregnancy of the mother and birth of the child, followed by more detailed notes about any infancy and childhood conditions. All five children participating in the study have been under subluxation-based chiropractic care prenatally and since birth. The participants also have siblings that have not been under the same chiropractic care since birth.

The techniques used were full-spine diversified with modifications for the age of the patient. At the initial physical exam and subsequent re-examinations, spinal thermography and surface electromyography analysis are completed using the Chiropractic Leadership Alliance (CLA) Insight technology as appropriate for the age of the child.

Results

As mentioned earlier, all mothers were under chiropractic care while pregnant with some starting care before pregnancy (mothers to children # 1, 2, 3, and 5). However, all mothers reported feeling better during their pregnancy with a decrease in symptoms such as low back pain (#2), extremity numbness (#4), and generalized soreness (#3). Children # 1, 2, 3, and 5 were born vaginally with no complications as mentioned in question 9 of the survey. Child #2 presented with transverse fetal positioning during the 3rd trimester. His mother was adjusting during labor, and child #2 turned before the mother needed to deliver. Child #4 was delivered via an obstetrician recommend cesarean section due to an expected larger than normal baby, but with no further complications.

Per the health questionnaire, all children were vaccinated to varying degrees as seen in Table 2. The parental response for children #1 and 5 was that those children were fully vaccinated per a recommended schedule. Child #3 was fully vaccinated except for the chicken pox vaccine, and child #4 was on a minimal vaccination schedule with no specifics

mentioned in the questionnaire by the parents. Child #2 was not vaccinated until four years of age. After receiving the diphtheria, pertussis, tetanus (DPT) vaccine, the mother reported that her son had a severe allergic reaction that continued into the development of asthma and allergies. The child was no longer vaccinated following that adverse reaction.

As noted as well in the health questionnaire, all children were breastfed from either 2 months to 11 months, some with formula supplementation and others with the introduction of rice cereal.

As it pertains to the dietary questions from the survey, all parents reported that their children eat a well-balanced diet consisting of plenty of fruits and vegetables, water, and limited caffeine and sugar. Children #3 and 4 take some type of multivitamin, and children #2 and 3 take Zyrtec and Flonase respectively for seasonal allergies. Child #2 also takes homeopathic allergy medications.

Each child is also extremely active and physically healthy with plenty of exercise throughout their day. In addition to school related gym activities, the pediatric participants also engage in track and field, martial arts, swimming, and baseball. Each child also has a consistent bedtime, with most of the children falling asleep quickly. Only Child #3 was noted as having difficulty falling asleep due to night terrors 2-3 times a week when younger which resolved.

The last set of questions pertains to how the parents rate their child's health who have been under care since birth, to their other child/children who have not been under regular chiropractic care since birth. Child #1's parents felt that their child under chiropractic care is healthy, but because she suffered from more colds as an infant compared to her sibling, they did not feel that their child under care was healthier per se. Child #2's health is rated as much better than his step-siblings. Child #3's parents rate their children's health about the same now, but initially when one child was under chiropractic care, that child was healthier. Child #4's parents rated their child under chiropractic care as healthier than his sibling, but more so when comparing the toddler years. Child #5's parents felt that both of their children are healthy.

Parents were then asked to compare their child's health who is under chiropractic care to other children of the same age. The parents of children #1, 2, 4, and 5 all felt that their child's health was much better than their friends and other children of the same age. All parents reported that their children's friends were constantly getting colds and were all-around sicklier than their children.

Limitations

There are limitations to the data presented. This is a small sample size of only five patients, therefore extrapolating data to a larger population or calculating any statistically significant data points is not possible with this study. This study also only represents that data from one pediatric chiropractic practice, with the parents reporting data and self-related health questions about their own children. The

participant and the participant's parents did not have any reported underlying health conditions, and were seeking chiropractic care during pregnancy and then wellness care of the infants. Once again, this is not representative of the US population.

Discussion

In understanding how health is measured, it is necessary to define health. According to the World Health Organization (WHO), health is defined as being "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity".²⁵ Health outcomes or measurements of health can be defined as "a change in the health of an individual, group or people, or population that is attributable to an intervention or series of interventions".²⁶ In a recent article on measuring population health outcomes, the author recommends specific metrics in measuring health: life expectancy/mortality rate, condition specific changes in life expectancy/mortality rate, and a self-reported levels of health.²⁷

There are a lack of studies concerning chiropractic care since birth as part of the wellness care or maintenance care paradigm. There are quality of life studies concerning the adult population and studies about improved health correlated with the ratio of chiropractors in a given area.²⁸⁻³⁰ In the retrospective study on the analysis of self-rated health, wellness and quality of life, the authors surveyed 156 Network Care, subluxation-based chiropractic offices to assess the respondents self-rated health domains and quality of life at two time points: presently and retrospectively (status before entering chiropractic care). By comparing the participant's health retrospectively and currently, a wellness coefficient was created for the survey analysis that represents the perceived change in health. Due to the large sample size of 2818 participants across the 156 chiropractic offices, statistically significant results could be surmised. It was noted that patients reported positive change in the four domains of health (physical state, mental/emotional state, stress evaluation, life enjoyment) as well as positive change as it relates to quality of life by using the wellness coefficient. These positive changes were seen as early as 1 to 3 months after beginning care, and had no indication of a maximal clinical benefit.²⁸

Two articles written by Hart attempt to correlate health outcomes with the ratio of chiropractors in a given area.^{29,30} By using the 2006 data results of Minnesota ranking first in health and Louisiana last, there is a connection between the two states which is the Mississippi River. Hart correlated various health outcomes such as health, education, and socioeconomics of the states along the Mississippi River moving north to south and found that chiropractors had stronger correlations for improved health outcomes compared to physicians. Of course, correlation does not equate to causation, and there are several other variables to consider for causation such as quality of drinking water and health care delivery.²⁹

In a similar study by Hart, using data from 2004, 21 health outcomes such as cardiovascular deaths, cancer deaths, crime statistics, and socioeconomic factors were correlated with

physician and chiropractic ratios. Overall, the health outcomes did improve as the ratio for both types of doctors increased however, chiropractors did have a stronger correlation for a greater number of outcomes. The outcome with the largest correlation coefficient difference was concerning cancer deaths. When increasing the doctor ratios, “cancer deaths decreased negligibly for physicians but moderately for chiropractors.”³⁰ The data in both Hart studies offers correlative evidence not causative, however, the data analysis does provide avenues of new research areas.^{29,30}

Similarly, to the Blanks and Hart studies, Coulter analyzed an insurance database to compare patients over the age of 75 under chiropractic care to those of the same age who are not under care. Those receiving chiropractic care had better health overall, fewer days spent in the hospital and/or nursing home, were more active, and used fewer prescription medications.³¹ In line with the Coulter insurance data, Sarnat et al analyzed clinical and cost utilization data for a four-year period and a three-year follow up from an integrative medicine independent physician association (IPA) with the primary care givers being chiropractors.^{32,33} Initially at the four-year period, the authors reported “reductions of 43% in-hospital admissions, 58.3% hospital days, 43.2% outpatient surgeries and procedures, and 51.8% pharmaceutical costs” compared to medical IPA utilizations in the same area and time frame.³² In the three-year follow up, which accounts for a seven year time period, the authors reported “decreases of 60.2% in-hospital admissions, 59% hospital days, 62% outpatient surgeries and procedures, and 85% pharmaceutical costs”.³³ The patient or member demographics also changed over the three year time difference between studies. Originally, the study averaged 12% pediatric enrollment for the years 1999-2002, compared to 2005 when pediatric enrollment peaked at 56% with the addition of medical doctors/doctors of osteopathy specializing in home birth and “natural medicine” options.^{32,33}

As per Medicare, “Care that seeks to prevent disease, promote health and prolong and enhance the quality of life is not considered medically necessary.”³⁴ Taking the term “medically necessary” into account, it would seem this statement has its basis in the insurance and financial world or health care costs. This statement could also exist because of the lack of physiological or research based evidence stating that people who are under wellness or maintenance care chiropractic programs receiving regular chiropractic adjustments are healthier.¹³ Taylor’s article cites subjective clinical observations, objective laboratory findings, and neurological effects for the physiological basis for maintenance spinal manipulative therapy.¹³

In a small animal study by Cramer et al, it was noted that the longer the animals had fixated spinal segments, the more numerous the osteophyte formation became.³⁵ In another small animal study by He, guinea pig knee joints were immobilized with alpha motor neuron activity monitored. A loss of neurons was noted after four weeks however, with the joint then mobilized, there was an increase in neurons.³⁶ Similarly to the He study, Kader found changes in the multifidus muscles correlated to patients with leg pain. Fatty depositions and atrophy were seen through MRI analysis in the multifidus muscles.³⁷ Taylor used the small animal

studies as well as several other studies of immobilized joints in human patients to relate to the physiological changes that occur when joints are immobilized.¹³ By mobilizing fixated joints and breaking up adhesions, Taylor is able to theorize the implications of a wellness/maintenance care paradigm in chiropractic to the prevention of neuron degradation, muscle atrophy, joint degeneration and predisposition to injuries.^{13,38} Through his analysis as well, Taylor was able to surmise a time dependency as it relates to immobility and spinal degeneration, muscle atrophy, and neuronal degradation. His literature review found that after two to four weeks of immobility, those negative outcomes began to form therefore, he concluded that maintenance manipulative therapy is most beneficial every two to four weeks.¹³

Taylor’s work looks at the biomechanical effects and advantages of regular maintenance manipulative therapy searching for the physiological change. Chiropractic, founded by Palmer, has its basis and emphasis on a holistic and vitalistic approach to maintaining health and preventing disease.³⁹ Many chiropractors also believe that identifying abnormal joint motion and vertebral subluxations and providing chiropractic adjustments to those segments is able to prevent neuromusculoskeletal conditions as well as those of visceral origins.⁴⁰ In 2012, Bolton and Budgell reviewed spinal manipulation to treat non-musculoskeletal complaints specifically cardiovascular, respiratory, gastrointestinal, and female reproductive function. Although the greatest number of studies has been conducted on cardiovascular function, the physiological basis of visceral responses to spinal manipulation requires still more research.⁴¹

Although some practitioners use wellness care and maintenance care interchangeably, it would seem from some of the research presented in this paper that there are differences between the two. As with the Danish Nordic maintenance care programs, patients with a history of low back pain were offered the maintenance programs to reduce the recurrence of their pain, and that patients with musculoskeletal issues were the only ones offered this type of care.^{15,16} In contrast, pediatric patients are commonly visiting chiropractors without previous musculoskeletal complaints and are therefore seen as more of a wellness care type of patient.⁹ There is a difference between the two words and what the care plans imply, provide, and consist of. However, both aim to provide optimal health and function.

As mentioned earlier, there is a lack of published data on the chiropractic care of children since birth. However, one study by Van Breda surveyed 200 pediatricians and 200 chiropractors to determine the differences in the health status of their respective children being raised under two different health care models. It was noted that there was a correlation between chiropractic care and superior health as indicated by a significant decrease in antibiotic use for the children under chiropractic care. In addition to the decreased antibiotic use, 69% of the children under chiropractic care never experienced otitis media where as 80% of the children under the medical model of care did. The children raised by pediatrician parents were expected to have a course of antibiotics at some point in childhood and most certainly suffer from otitis media, whereas the majority of children raised by chiropractor parents did not received any antibiotics

throughout childhood. The authors make note that the results from the survey of children raised under two different models of health care show the benefits of the chiropractic model of health care on the health status of the children by documenting decreased antibiotic use and less overall sickness implying an improved function of the immune system as it compares to children raised under the medical model of health care.⁴²

The parent reported data presented in this study shows that these children under chiropractor care are either healthier or just as healthy as their siblings. More importantly, the children's health compared to peers of the same age shows the biggest difference in the parental-reported views of health. The peers not under care are considered sicker compared to those children under chiropractic care. Continuing to follow these patients throughout life with follow-up surveys of both parents and children would be the next step into continuing this research.

Conclusion

This study aims to add more data and emphasis on the chiropractic care of pediatric patients. Although surveys of chiropractors about practice demographics, patient age and chief complaint have been conducted, following patients under chiropractic care from birth to adolescence and subsequently to adulthood have not been conducted. This type of information is important for determining the effectiveness of wellness and/or maintenance care. In this study, although the survey answers are parental reported quality of life questions, those type of self-reported health questions can be considered an important determinant of health and a measurable health outcome.

All of the healthcare cost and retrospective quality of life studies deal with the older population that is important data to track, but tracking those health outcomes from wellness chiropractic care since birth could add substantially more data. These data could add to the CAM definition of wellness as a preventative measure, not necessarily the allopathic model of using diagnostic tests for the early detection of conditions. Tracking healthcare costs and outcomes of those seeking wellness care from an early age could represent extreme changes to healthcare reform, defining what it means to be healthy, and offering the best care to the population.

The data and surveys presented in this study do not aim to add to the physiological basis for chiropractic adjustments, however these data show the need for continued studies into how chiropractic adjustments can affect health, health outcomes, musculoskeletal, non-musculoskeletal, and ultimately quality of life.

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Tables

	Child #1	Child #2	Child #3	Child #4	Child #5
Age	11	11	9	10	13
Gender	F	M	M	M	F
Birth Order	2 nd of 2 girls	Only child – 2 step siblings	2 nd of 2 boys	2 nd of older sister	1 st of 2 girls

Table 1. General Information of Pediatric Participants

	Child #1	Child #2	Child #3	Child #4	Child #5
Vaccination status	Fully	None until 4 years	Fully except chicken pox	Minimal required	Fully
Breastfeeding history	11 months	4 months, then formula supplements	2 months, then supplement with formula	9 months	11 months

Table 2. Vaccination and Breastfeeding Status of Pediatric Participants

	Child #1	Child #2	Child #3	Child #4	Child #5
Reflux	a little, used gripe water	none	none	none	none
Diarrhea	none	none	none	none	a little, cause diaper rash
Constipation	a little, used gripe water	none	none	none	none
Excessive crying	none	none	none	none	none
Colic	none	none	none	none	none
Rashes	none	none	none	none	none
Jaundice	none	none	billibed for 1 week	none	none
Headaches	history of headaches related to jaw pain	none	none	none	none
Musculoskeletal issues	flat feet - orthotics	none	none	none	growing pains
Scoliosis	none	none	none	none	none
Asthma	none	asthma at 4	none	none	none
Bedwetting	none	none	none	none	none
Allergies	none	yes	seasonal	seasonal	seasonal
Eczema/hives	none	none	only with cold, dry air	none	none
Ear infections	only once, swimmers ear	none	none	2	none
ADD/ADHD	none	none	none	none	none
Infections	colds	pneumonia	none	none	none
Flu/Influenza	none	none	1 time	none	none
Digestive issues	none	none	none	none	none
Falls/accidents	none	bike accident at 8	broken wrist at 6	none	none
Surgeries	none	none	none	none	none
Hospitalizations	none	bronchoscopy at 4	none	none	none

Table 3. Infancy and Childhood Conditions of Pediatric Participants. Table 3 consists of infancy and childhood conditions reported in the pediatric patients who were surveyed.