

**The Knowledge, Attitude and Practices of Registered Complementary
Medicine Professionals on the use of Complementary Medicine (CM)
Modalities for the Treatment of Autism**

By

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I, Tasfiyah Rasool declare that this dissertation is representative of my own
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Dedication

To my parents **Mohamed Farouk Rasool** and **Fazila Rasool**, I would like to thank you both for your love and support in all aspects throughout this journey. Without you both I would never have come this far. Your motivation and care have been my biggest pillar of strength.

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Abstract

INTRODUCTION

Complementary medicine (CM) practitioners are professionals who practice natural medicinal therapies. Complimentary medicine has been in existence from the 1700s. In recent times healthcare has shifted more towards natural medicinal therapies due to their known limited side-effects. Autism is a major neurodevelopmental disorder which is on the rise globally and the effects thereof are impairing to an individual's everyday functioning. In South Africa and the world in general there is a lack of research in the field of autism and complementary medicine.

Research specifically on autism is very scarce in South Africa (Pillay *et al.* 2020). Due to this lack of information, disorders such as autism are largely ignored, and the community then treat children who are autistic with disrespect and prejudice these children are often marginalised in the education sectors (Baraza 2019).

The availability of information or education regarding the uses of complementary medicine for autism and other impairing neurodevelopmental disorders should be improved. This will be of great advantage to the autistic community and the healthcare professionals in the field.

OBJECTIVE

The first objective was to determine the extent of knowledge in the usage of complementary medicine for autism amongst practitioners registered with the Allied Health Professions Council of South Africa (AHPCSA). Another main objective was to establish the attitudes and practices related to usage of CM for autism.

METHODOLOGY

A quantitative descriptive survey was conducted in the form of a web-based questionnaire via GoogleDocs® to determine the knowledge, attitudes, and practices of registered complementary medicine professionals regarding the use of complementary medicine modalities for treatment of autism symptoms. The sample was obtained from the (AHPCSA) website and through organisations for the respective professions who are registered with AHPCSA namely: Aromatherapy Association of South Africa (AromaSA), Homeopathic Association of South Africa (HSA), South African Association of Chinese Medicine and Acupuncture (SAACMA) and South African Naturopathy Association (SANA). Complementary medicine professionals included were aromatherapists, homoeopaths, acupuncturists, and naturopaths. The data was analysed using frequency tables and bar charts in relation to categorical variables. Fishers exact test was used to analyse certain data.

RESULTS

One hundred and thirty-two online surveys were completed and used for analysis out of the expected 282 (a response rate of 46.8%).

CONCLUSION

This study concluded that complementary medicine professionals are very uncertain when it comes to their knowledge of complementary medicine for autism. However, Complementary medicine professionals' attitude towards complementary medicine for autism seems to be positive. that Complementary Medicine could benefit autistic people and the practices of these Complementary Medicine Professionals seem to be showing good outcomes in the field of autism. The uncertainty in the knowledge of complementary medicine professionals shows a lack of information in the related field and the dire need to create more research and education in this field to create more usage of CM for autism.

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List of Abbreviations

CM Complementary Medicine

AHPCSA Allied Health Professions Council of South Africa

HSA Homoeopathic Association of South Africa

AromaSA Aromatherapy Association of South Africa

SAACMA South African Association of Chinese Medicine and Acupuncture

SANA South African Naturopathy Association

List of Definitions

Autism Spectrum Disorder

Any of a group of developmental disorders such as autism and Asperger's syndrome marked by impairments in the ability to communicate and interact socially and by the presence of repetitive behaviours or restricted interests (Merriam-Webster Inc. 2021).

Aromatherapy

Inhalation or bodily application (as by massage) of fragrant essential oils (as from flowers and fruits) for therapeutic purposes (Merriam-Webster Inc. 2021).

Ayurveda

A form of alternative medicine that is the traditional system of medicine of India and seeks to treat and integrate body, mind, and spirit using a comprehensive holistic approach especially by emphasising diet, herbal remedies, exercise, meditation, breathing, and physical therapy (Merriam-Webster Inc. 2021).

Acupuncture

An originally Chinese practice of inserting fine needles through the skin at specific points specially to cure disease or relieve pain (Merriam-Webster Inc. 2021).

Allopathic Medicine

Allopathic medicine also called allopathy. This is a health care system in which medical doctors, nurses, pharmacists, and other healthcare professionals are licensed to practice and treat symptoms or diseases. Treatments are through medication, surgery, radiation and other therapies or procedures (Iftikhar. 2019).

Antipsychotic

Any of the powerful tranquillisers used specially to treat psychosis and believed to act by blocking dopamine nervous receptors (Merriam-Webster Inc. 2021).

Complementary Medicine

A group of therapeutic and diagnostic measures that are used with conventional medicine (Marks, 2021).

Chiropractic

A system of non-invasive therapy which holds that certain musculoskeletal disorders result from nervous system dysfunction arising from misalignment of the spine and joints and that focuses treatment especially on the manual adjustment or manipulation of the spinal vertebrae (Merriam-Webster Inc. 2021).

Homoeopathy

A system of medical practice that treats a disease especially by the administration of minute doses of a remedy that would in larger amounts produce in healthy persons symptoms like those of the disease (Merriam-Webster Inc. 2021).

Mortality

Mortality refers to a death rate. There are a few different types of mortality rates such as foetal mortality rate, infant mortality rate, maternal mortality rate etc. (Stöppler 2021).

Morbidity

The incidence of disease: the rate of illness, as in a specified population or group (Merriam-Webster Inc. 2021).

Naturopathy

A system of treatment of disease that avoids drugs and surgery and emphasises the use of natural agents (such as air, water, and herbs) and physical means such as tissue manipulation and electrotherapy (Merriam-Webster Inc. 2021).

Reflexology

Massage of the hands or feet based on the belief that pressure applied to specific points on these extremities benefits other parts of the body (Merriam-Webster Inc. 2021).

Unani-Tibb

A system of medicine based on the teachings of Hippocrates and Galen, subsequently developed into a comprehensive healthcare system by Arabic physicians, especially Ibn Sina (aka Avicenna) (South African Society of Integrative Medicine 2021).

Chapter 1: Introduction

1.1 Background to the Study

Neurodevelopment disorders are on a rise globally, especially in sub-Saharan Africa and South Asia. These disorders come from a severe impairment during brain development and/or central nervous system, which causes changes in children's behaviour and their normal ability to learn. One example of this type of disorder is autism. Research showed that in 2016, 2.06% of the Kenyan population was affected by some neurodevelopment disorder (Baraza 2019). Research specifically on autism is very scarce in South Africa, therefore the actual prevalence of the disorder remains unknown (Pillay *et al.* 2020). Due to this lack of information, disorders such as autism are largely ignored, and the community then treat children who are autistic with disrespect and prejudice. These children are often marginalised in the education sectors (Baraza 2019).

In allopathic medicine, anti-psychotics are commonly used to treat autism. The long-term use of anti-psychotics are associated with metabolic side effects including weight gain, diabetes mellitus and atherogenic lipid profile (Lee 2019). These side effects are all risk factors for the development of cardiovascular disease and insulin resistance which in turn may lead to morbidity and mortality. Therefore, the side effects of anti-psychotic drugs should be a great concern when planning a patient's treatment, especially when they are children (Lee 2019).

A study conducted by (Hopf, Madren and Santianni 2016) in south-eastern Virginia reported that 80.9% of parents with autistic children had tried some form of complementary medicine (CM) for their child. Complementary medicines have been a great option for autism due to their limited side effects and known benefits in most disorders. In this study the knowledge, attitudes, and practices in among CM professionals regarding the use of CM treatment for autism was determined. The results

showed that there is a need for more education around autism and the use of CM for autism.

To guide parents on autism treatments, professionals need to be able to have sufficient knowledge and confidence to be able to advise them correctly (Deyro *et al.*, 2016). For this reason, it is of utmost importance for health care professionals to understand how CM treatments can be used in alleviating the suffering of autistic patients. CM professionals can possibly share their knowledge about CM treatment with autism patients or parents with children who have autism thereby increasing awareness about such treatments to improve general quality of services provided in the CM field.

Although there is a lot of literature available on treatment options regarding both traditional medical as well as complementary therapies, although not much research has been conducted on how confident professionals are in recommending these treatments for autism. This research aimed to investigate how confident CM professionals are in recommending or using CM treatments for autism and to assess their general attitude and knowledge related to the use of CM for autism. This knowledge can then be used by CM professionals to further advise their patients, or to develop more comprehensive understanding of the different complementary therapies that may work in the South African context.

1.2 Aims and Objectives of the Study

The aim of this quantitative research survey was to determine the knowledge, attitudes, and practices of South African CM professionals regarding CM treatment for the alleviation of symptoms of autism. This highlighted whether more education for CM professionals was needed regarding CM treatment for autism. Also, it helped to show how exactly these professionals perceived or made use of CM in autism patients. The first objective was to determine the extent of knowledge in the usage of CM for autism

amongst CM professionals. Another main objective was to establish the attitudes and practices related to usage of CM for autism.

1.3 Outcome of the Study

Although most CM professionals had treated autism or had seen autistic patients, a large percentage felt they would be more confident in the use of CM for autism if more research were to be done on its use.

After the collected data was analysed, it was evident that there was a very significant and positive association between the recommendation of CM for autistic patients by CM professionals and their satisfaction rate in treatments using CM for autistic patients. However, there was many CM professionals who had seen no positive outcome in the use of CM treatments for autism. The CM professionals who had positive outlooks as measured by the survey questions seemed to be more open to recommending CM for autism, while those professionals with negative outlooks seemed to steer away from recommending CM for autism.

This study provided valuable information which can contribute to future recommendations and more research in the field of CM for autism. Collaboration between CM professionals in South Africa will be a beneficial outcome from this study to enforce much needed education in this field so that these professionals can build confidence and knowledge and therefore advise parents of autistic children or autistic patients themselves on how CM can be used to alleviate symptoms of autism.

Chapter 2: Literature Review

2.1 Autism Spectrum Disorder

Autism is known as a neurobiological disorder of unknown aetiology. The DSM-5 (American Psychiatric Association 2013) characterises the disorder as “persistent impairment in reciprocal social communication and social interaction, and restricted, repetitive patterns of behaviour, interests or activities.” These diagnostic features should be present from early childhood and cause limitations or impairment in everyday life of the individual. The categories of socio-communicative and socio-interactive deficits of autism include social-emotional reciprocity, non-verbal communication and the development, maintenance, and comprehension of relationships. Repetitive behaviours include pacing, finger flicking, repetitive speech, hand flapping and repetitive spinning (American Psychiatric Association 2013). The disorder presents in childhood with diagnosis taking place at three years of age and continues throughout the lifespan. An association with co-morbid conditions such as attention deficit hyperactivity disorder, anxiety disorder, epilepsy and depression are common (Goodwin 2016).

2.1.1 Aetiology

The cause remains unknown, but evidence suggests a link to genetics, epigenetic and environmental causes (Lamb 2011). Some suggested causes are presented below:

- **Maternal use of medication-** many medications’ safety during pregnancy and lactation is yet to be confirmed. Autism literature suggests anti-convulsive and anti-depressive medications to be possible contributing factors to offspring developing autism (Bolte 2019).
- **Infections and immune dysfunction-** The association between autism and congenital rubella has contributed to debate on the role of infections and the immune system in the cause of autism (Meltzer and van de Water 2017; Hutton,

2016). Evidence has suggested an immune system with abnormal immune functions causes a negative influence on the trajectory of autism, in addition to rubella there are other maternal viral and bacterial infections which pose a risk of developing autism (Atladóttir *et al.* 2010; Zerbo *et al.* 2015).

- **Vitamin D deficiency-** Vitamin D is used for multiple biological functions which include calcium homeostasis and metabolic functions. Vitamin D enzymes and receptors remain active in neurons of the brain and glial cells which are directly associated with the role of Vitamin D in neurodevelopment while in utero. A recent systemic literature review concludes that vitamin D deficiencies during early development interacts with other possible risks and can contribute to the cause of autism (Bolte *et al.* 2019).
- **Iron deficiency-** iron deficiency in pregnant women is common and could cause foetal iron deficiency (Tchernia *et al.*, 1996). In the CHARGE case-control study it was found that mothers who had a low intake of iron were more likely to have a child with autism. This was especially true if there were other autism risk factors. However, this study was not valid in a Norwegian birth cohort (Schmidt *et al.* 2014; Surén *et al.* 2013).
- **Perinatal-** there is a history of research on perinatal factors and how these associate with autism including caesarean birth, low birth weight, premature birth, low APGAR score and hypoxia. Many of these factors may play a role in autism risk. However, these factors are not likely to be the primary cause of autism but rather contribute to the predisposition for autism (Bolton *et al.* 1997).
- **Vaccinations-** A report which was published in 1998 and retracted by the journal involved suggested the measles, mumps, and rubella (MMR) vaccine is a cause of autism. Several studies have been conducted after this and have not found an association between the MMR vaccine and autism (DeStefano *et al.* 2019).

2.1.2 Prevalence

The prevalence rate of autism is recorded as 1 in 68 internationally. There are no prevalence rates for the South African population. However, a prevalence rate of 1 in 86 children diagnosed with autism was reported in the Western Cape in 2015 (Autism Western Cape 2018: Centre for Diseases Control 2015). This prevalence rate was determined by the number of children who were diagnosed and receiving treatment in selected hospitals and is therefore not conclusive in the actual number affected (Autism Western Cape 2018).

2.1.3 Diagnosis

Diagnosis of autism is made by a professional who is well trained in the field of autism such as developmental paediatricians and educational psychologists. Before diagnosing autism, other pathologies which have similar symptoms of autism must be eliminated (Goodwin 2016). Once other pathologies are ruled out, autism can be the most probable diagnosis. Clinical data collected from observations and physical examination as well as any information obtained from parents is a requirement to diagnose autism (Goodwin 2016).

Disorders with symptoms like autism are:

- **Williams syndrome-** a genetic disorder which has a section of DNA material on chromosome number seven missing (Edelson 2021).
- **Fragile X-** also known as Martin Bell syndrome is a genetic disorder which is sex-linked. Males who are affected with this may have a moderate to severe form of intellectual handicap while females tend to have a milder form of impairment (Edelson 2021).
- **Landau-Kleffner syndrome-** form of epilepsy which is shown through a form of aphasia and develops between ages three to seven years (Edelson 2021).
- **Prader-Willi syndrome-** commonly seen as a multisystemic genetic disorder with symptoms such as hypotonia, failure to thrive, short stature, weight gain from

excessive eating habits, developmental delays, and cognitive disability (Angulo, Butler and Cataletto 2015). It is associated with autism but not a subtype of autism (Edelson 2021).

- **Angelman syndrome-** Nervous system genetic disorder. Symptoms start in first year of life and become more noticeable in early childhood years (Edelson 2021).
- **Rett syndrome-** a neurological syndrome with symptoms such as loss of speech and motor skill, breathing problems, repetitive hand movements and seizures (Kyle, Vashi and Justice 2017). Brain autopsies show a pathology different to autism (Edelson, 2021).
- **Tardive dyskinesia-** long term chronic use of neuroleptic drugs causing dysfunctional, involuntary movement. Can happen from three months to years after initial usage of neuroleptic drugs and withdrawal from these drugs often leads to an exacerbation of symptoms (Edelson 2021).

Table 2.1: Symptom similarity and differences to autism

Condition	Similarities	Differences
Williams Syndrome	Gross motor skill difficulties, hypersensitive to noise, fussy eating habits, delays in language and development and repetition of actions or words.	Cardiovascular abnormalities, high calcium levels, high blood pressure, social abilities prominent, unique pixie like facial features, almond shaped eyes, full lips, small chin, a narrow face, oval ears, and wide mouths.
Fragile X	Hand-flapping, hand or nail biting, poor eye contact, speech delays and behaviour problems.	High arched palate, large ears, long face, large testicles (males), strabismus, poor muscle tone, flat feet, and mild heart valve abnormalities in some. However, some individuals might not have typical physical features.
Landau-Kleffner Syndrome	Loss of ability to comprehend speech, loss of ability to speak (can occur gradually or suddenly), failure to respond to sound, insensitivity to pain, aggressive behaviour, sleep problems, poor eye contact.	Abnormal EEG patterns in the temporal lobe and temporo-parieto-occipital region of the brain mainly during sleep, 70% of individuals develop epilepsy.
Prader-Willi Syndrome	Learning disabilities, temper tantrums, high pain threshold, skin picking, sleep problems, infancy feeding problems,	Obsession with food and therefore impulsive eating, under-developed sexual characteristics, compact body

	language, and motor development delays.	build, poor muscle tone, could be overweight and mild mental deficits.
Angelman Syndrome	Speech impairments, motor skill problems, hyperactivity, hand flapping, difficulty sleeping	Mental deficits, balance problems, epilepsy, and small head.
Rett Syndrome	Prolonged toe walking, body rocking, sleep problems, repetitive hand movements.	Shakiness of torso, unsteady and stiff legged gait, breathing difficulties, seizures, difficulty chewing, small head, stunted growth, hypo activity and severe mental deficits.
Tardive Dyskinesia	Head nodding, foot tapping, grimacing, eye blinking.	Shuffled gait, tongue thrusting, respiratory disturbances, oral ulcerations, difficulty walking and standing, inability to eat.

Adapted from: Edelson, S. M. 2021. *Related disorders*. Autism Research Institute. Available: <https://www.autism.org/related-disorders/> .

2.1.3.1 Measurement Tools Used in Diagnosing Autism

Some tools widely used to assist professionals in diagnosing autism are (Goodwin 2016):

- **Autism Diagnostic Observation Schedule (ADOS)**- an interactive, standardised assessment which is designed to support the diagnostic process and is commonly considered to be the “gold standard” in diagnosis of autism. It includes four modules which are used to evaluate reciprocal social communication, interests, imagination, and restricted interests which map the domains of the DSM-IV (de Bildt *et al.* 2011).
- **Childhood Autism Rating Scale (CARS)**- a diagnostic tool used to help evaluate children who are suspected of having autism. The tool works by examining and assigning scores to several factors to assist in distinguishing children with autism from children with other developmental disabilities. The tool also helps to determine to what degree the individual with autism is affected. The tool is in the form of a questionnaire and is completed from direct observation by a healthcare professional or reports from teachers, parents, or caretakers (Secor 2021).
- **Autism Behaviour Checklist (ABC)**- this tool is a 57-item behaviour rating scale used to assess behaviours and symptoms of autism in children aged three and

older. The tool is divided into sensory, relating, body and object uses language and social and self-help. Each of the items mentioned has a score weighting from 1 to 4. This tool must be completed by a parent or teacher who has experience with the child in question, over a period of 3 to 6 weeks. A healthcare professional must interpret the scoring (Cassidy 2013).

- **DSM-5™ Diagnostic Criteria-** professionals use the Diagnostic and Statistical Manual of Mental Disorders (5th Edition) (2013) which is produced by the American Psychiatric Association to diagnose autism. The DSM-5™ has a list of signs and symptoms of autism and explains how many of these signs and symptoms must be presenting in the patient to confirm a diagnosis of autism spectrum disorder.

2.1.4 Signs and Symptoms

There are two main symptoms which help to characterise individuals on the autism spectrum: communication and social interaction deficits, and repetitive, restrictive behaviour. Epidemiological studies have added to these symptoms and have highlighted the high prevalence of emotional and behavioural problems in autism spectrum disorder such as depression, anxiety, hyperactivity, inattention, and aggressive behaviour (Tsai *et al.* 2020).

According to the NICHD 2005, the main aspects in the signs and symptoms of autism are language, social behaviour and include behaviours which involve objects and routines as listed below:

- **Communication-** this involves verbal and non-verbal i.e., eye contact issues, smiling and pointing.
- **Social interaction-** sharing of emotions, empathy and maintaining a conversation including time spent interacting with other people.
- **Routines or repetitive behaviours-** repetition of words or actions, obsession in routine following or schedules, doing certain tasks in a repetitive or inappropriate manner, or arranging items in an extremely specific manner.

In addition to the above, autistic individuals may find it difficult to talk, maintain eye contact, or simply look into a person's eyes when in conversation. Some people with autism may never learn how to talk. Such behaviours can be challenging and life changing. Autism symptoms also put a strain on families, healthcare providers, teachers and anyone who must deal with them. It is important to keep in mind that different individuals with autism may have different signs or symptoms, therefore it is called a "spectrum disorder" (National Institute of Child Health and Human Development 2005).

Most of the behavioural symptoms in autism are observed by 18 months of age. On average the age when autism is commonly diagnosed is currently at 8 months. Some of the following "red flags" that have been identified by the National Institute of Child Health and Human Development (NICHD) are listed in Table 2.

Table 2.2: Red flag autism symptoms

- The child does not respond to his/her name.
- The child cannot explain what he/she wants.
- The child's language skills are slow to develop, or speech is delayed.
- The child does not follow directions.
- At times, the child seems to be deaf.
- The child seems to hear sometimes, but not other times.
- The child does not point or wave "bye-bye."
- The child used to say a few words or babble, but now he/she does not.
- The child throws intense or violent tantrums.
- The child has odd movement patterns.
- The child is overly active, uncooperative, or resistant.
- The child does not know how to play with toys.
- The child does not smile when smiled at.
- The child has poor eye contact.
- The child gets "stuck" doing the same things over and over and cannot move on to other things.
- The child seems to prefer to play alone.
- The child gets things for him/herself only.
- The child is very independent for his/her age.
- The child does things "early" compared to other children.
- The child seems to be in his/her "own world."
- The child seems to tune people out.
- The child is not interested in other children.
- The child walks on his/her toes.
- The child shows unusual attachments to toys, objects, or schedules (i.e., always holding a string or having to put socks on before pants).
- Child spends a lot of time lining things up or putting things in a certain order.

2.2 Conventional Treatment of Autism Spectrum Disorder and Associated Side Effects

Medications are used in the treatment of the associated symptoms of autism, although the efficacy for the use in these treatments have not been established. (DeFilippis and Wagner 2016).

2.2.1 Atypical Antipsychotics

This is a class of drugs primarily used in the treatment of psychotic disorders. General uses include relief from symptoms such as delusions or abnormal behaviour, hallucinations and may have tranquilising or sedative effects in aggressive patients (Purse 2021).

Risperidone - used in the treatment of irritability associated with the autism spectrum disorder. Significant side effects such as weight gain, increased appetite, fatigue, drowsiness, dizziness and hypersalivation are noted (Shea, Turgay and Carrol 2004).

Aripiprazole - most common side effects include weight gain and sedation (DeFilippis and Wagner 2016).

Olanzapine - Side-effects include weight gain, increased appetite, and loss of strength however there were improvements on the ABC subscales of irritability, hyperactivity, and excessive speech (Findling *et al.* 2014).

Lurasidone - Most common side effects are vomiting and somnolence (Loebel, Brams and Goldman 2016).

2.2.2 Typical Antipsychotics

A class of antipsychotics developed in 1950s which are used in the treatment of psychotic disorders now being replaced with the use of atypical antipsychotics due to its many side effects. The main uses of typical antipsychotics are psychosis, acute mania, and agitation (Dazzan 2005).

Haloperidol - This was one of the first medications to be studied for use in autism. Acute treatment has shown benefits in areas of temper tantrums, hyperactivity, withdrawal, stereotypical behaviours and facilitating learning on discrimination tasks. Most common side effects are sedation, irritability, and acute dystonic reactions. The risk of dyskinesia was shown to be increased with length of treatment, therefore the long-term use of this is quite a concern (DeFilippis and Wagner 2016).

Antidepressants - Used in autism due to symptoms of repetitive, ritualistic behaviours. Selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants and other antidepressants have been studied in patients with autism (DeFilippis and Wagner 2016). SSRIs showed no improvements and no adverse effects while with the other antidepressants general adverse effects noted include restlessness, agitation, decreased appetite, hyperactivity, and insomnia (DeFilippis and Wagner 2016).

2.2.3 Mood Stabilisers

This class of medication treats and prevents mania and depression. Treatment adverse effects do not differ significantly from the other groups of medications (DeFilippis and Wagner 2016).

2.2.4 Stimulants/Alpha 2 Agonists

Commonly ADHD symptoms are seen in autism which has led to research examining the efficacy of ADHD treatments among the autistic populations. Despite concerns about possible risk of side effects in the use of stimulants in children with autism, alpha-2 agonists have been studied as an alternative to manage hyperactivity and impulsivity. Common side effects were found such as drowsiness, fatigue and decrease in appetite, however, other than that the drugs were well tolerated and showed a slight improvement of symptoms (DeFilippis and Wagner 2016).

2.3 Complementary Medicine

‘Complementary medicine’ refers to a group of health care practices which fall outside the country’s own conventional medicine and does not form part of the dominant health care system. In some countries, CM is used interchangeably with traditional medicine (World Health Organisation 2019). CM can be understood as any treatment which is not a part of conventional medicine. However, complementary medicine is generally used together

or in conjunction with conventional treatments, while alternative medicine is used in place of conventional treatments (Harris *et al.* 2006).

CM has been used since the 1700s, in the time when people were looking for a different route to the harsh treatments of that time (blistering skin, purging etc.) (Whorton 2006). Homoeopathy was the first CM to gain popularity in the United States, created by the German physician Dr Samuel Hahnemann in the 1700s (Whorton 2006). Next in line was chiropractic and naturopathy, followed by spiritual healing (Whorton 2006). While CM gained popularity, physicians began to use acupuncture, therefore leading to research of other Chinese medicines and ayurveda (Whorton 2006). In 1992, the National Institutes of Health created the Office of Alternative Medicine whose focus was mainly on safety and effectiveness of CM treatments (Milden and Stokols 2004). The use of CM has increased steadily throughout the years, with one third of all Americans having used some type of CM (Sikand and Laken 1998).

According to SAHPRA 2013, the complementary medicine modalities available in South Africa are aromatherapy, Ayurveda, homeopathy, traditional Chinese medicine, unani-tibb and western herbal medicine. The efficacy of the majority CM modalities for autism have not been studied and therefore, although these treatments have shown some good results, the actual efficacy remains unknown and unclear (Whitehouse 2013).

2.3.1 Aromatherapy

Aromatherapy is based on the usage of essential oils which are extracted from different parts of fresh plants and is used with the purpose of providing therapeutic effects to patients (Delgado Ayza 2005).

Aromatherapy is currently widely used for managing chronic pain, anxiety, depression, cognitive disorders, insomnia, and stress related problems. Essential oils are being used worldwide for centuries as traditional medicine. However, there is little science behind its effectiveness, yet some users report the benefit of using it positively. Evidence shows

that essential oils used through inhalation and topically applied enter the bloodstream and exert psychological benefits, therefore effects are primarily pharmacological (Perry and Perry 2006).

Autism symptoms in children include insomnia and therefore a blend of lavender and German chamomile essential oil has shown relief. Lavender increases serotonin levels and German chamomile has been shown to have calming effects in general. Children with autism suffer from candida, rubbing garlic essential oil on the dorsal region of the feet has shown to be quite effective at controlling candida. Lavender and frankincense oils help to detoxify the body, this is especially effective due to children with autism being loaded with heavy metals. Essential oils such as peppermint, chamomile, sandalwood or neroli have helped to decrease the distress of symptoms in autistic patients (Perales 2017).

2.3.2 Homoeopathy

Homoeopathy is a complementary medicine which is cost effective and treats on a holistic level and has been shown to improve symptoms of neurological disorders such as learning difficulties and depression. However, research on the treatment of homoeopathy for autism is limited (Goodwin 2012). Homoeopathy was founded by the German physician Dr Samuel Hahnemann (Sankaran 1999).

The principle of homoeopathic medicine is based upon similarities between the clinical presentation of the patient and the applied drug presentation as per previous proving (Law of Similars) (Swayne 1998). The laws of similars, “*similia similibus curentur*” or “like cures like” refers to the observation that any substance which produces symptoms in a healthy individual when administered in large doses, can bring cure to the same symptoms in a sick individual when administered in minute doses (De Schepper 2001). The next principle looks at prescribing a single remedy at a time which allows for evaluation of any beneficial or adverse effects produced by the administration of the remedy (Vithoulkas 1998).

Individualisation is of utmost importance in homoeopathy. According to De Schepper (2001), “the homoeopath does not treat disease, he treats sick individuals, and no two patients with the same disease are ill in exactly the same way.” (Paruk 2006). To remain accurate in prescribing homoeopathy the medicine picture and the patient’s symptom picture of the illness must be matched. Homoeopathic medicines are thus individualised to the patient (Swayne 1998).

Several studies have shown a link between autism and an excess of peptides in the brain which show those affected to be in an opioid state. The hormone found in the intestines’ called Secretin has been suggested to decrease peptide levels; a homoeopathic remedy prepared from Secretin has been suggested to prove the same results (Goodwin 2012). Homoeopathy has been used for over two hundred years as a treatment method for a variety of conditions and is governed under a few principles (Bloch and Lewis 2003) as outlined above.

2.3.3 Ayuverda

Ayurveda is a traditional system of Indian medicine. Ayurveda contains preventative and curative characteristics. There is an emphasis on strict personal and social hygiene; details rely on the individual, climate, and environmental needs. These aspects fall under preventative measures. The use of exercise, herbal mixtures, and yoga fall under remedial measures. The use of herbal medicines, external application mixtures, physiotherapy, and diet fall under curative measures. One of the main principles of Ayurveda states the preventative and therapeutic measures must be adapted to the individuals’ requirements (Encyclopaedia Britannica 2019).

One of the most widely and powerful Ayurveda medicines named Brahmi has been used as a brain tonic. It promotes good sleep patterns, calms the emotional state while improving concentration and alertness. A study was conducted to determine the cognitive effects of Brahmi on autism. It was concluded that autistic children have great visual

cognition but there was a great need to promote it; Brahmi has shown very good improvements in this regard. Brahmi along with other therapies enhanced the quality of life in autistic children (Mukherjee et al. 2017).

2.3.4 Chiropractic

A chiropractor focuses on the diagnosis, treatment, or management of neuromuscular disorders with emphasis on manual adjustments and/or manipulation of the spine. Chiropractic principles focus largely on the relationship between the spine and nervous system. Chiropractors believe the biomechanical and structural derangement of the spine can affect the nervous system. Chiropractic treatments can bring back structural integrity of the spine, decrease pressure on the neurological tissue and improve overall health in an individual (Yeomans 2013).

Several chiropractors report great symptomatic relief and improvements after providing treatment to autistics patients (Jennings *et al.* 2006). There is very limited literature to support these statements. Manipulative therapies can help with a few symptoms of autism spectrum disorder. However, it does not cure or treat the underlying disease (Jennings *et al.* 2006).

A study was performed where chiropractic adjustments were done on 26 autistic children over a nine-month period. During the study, many of the children were then weaned off their autistic medicine and significant improvements were seen in bladder and bowel control. Some of the children were able to speak for the first time and some maintained eye contact which they were unable to do prior to the treatment. An improvement to the children's attention span was also noted, and the aggressive and hyperactivity in the children was significantly reduced. There were five children who were able to attend normal school for the first time in their life. teachers and parents reported significant behaviour improvements in all the children (Aguilar et al. 2000).

2.3.5 Naturopathy

Naturopaths believe in the healing abilities of nature and aim to promote the body's self-healing ability. The fundamental principles of naturopathy include but are not limited to (Burne 2021):

- In nature lies healing powers.
- It is important to identify the underlying physical or emotional cause of the problem and treating it.
- The patient should be treated as a whole.
- The naturopath should guide the patient to take responsibility for his/her own health.

Chelation therapy is an example of the most used aspect of naturopathy for autism. Symptoms of autism are said to be aggravated by the presence of heavy metals in the body; chelation therapy binds and eliminates these metals which can improve the severity of autism symptoms (Goodwin 2016). Several reports suggest the adverse effects of Chelation therapy such as renal damage and death (James *et al.* 2015). A single study was conducted to determine the efficacy of chelation therapy for treatment of autism. However due to methodological flaws this provided insufficient evidence regarding the efficacy of chelation therapy in the treatment of autism. Further research should be conducted to determine the link between heavy metals and autism (James *et al.* 2015).

2.3.6 Unani-Tibb

Unani-Tibb follows a traditional system of holistic health. From 1976 to date the World Health Organisation has initiated a policy to ensure the promotion of traditional medicine. In India Unani-Tibb is practised as one of the main forms of medicine (Jabin 2011).

Unani-Tibb has been widely used to treat multiple neurological disorders as it contains neuroprotective properties. The main aim of neuroprotective drugs is to prevent effects due to oxidative stress, mitochondrial dysfunction, inflammation, and immune system

dysregulation. The plant-based Unani medicines have a few bioactive compounds which can work on a few systems at the same time which include oxidative stress, mitochondria, inflammation, and immune system. These medicines can also be used to manage autism spectrum disorder. Unani-Tibb herbal medicines have been studied in depth for many diseases which include neurological and psychiatric disorders with great results while not creating any adverse effects (Shamsi *et al.* 2019).

2.3.7 Traditional Chinese Medicine and Acupuncture

Traditional Chinese Medicine (TCM) is an old system of medicine which was in practised before the Chinese Revolution and is based on a few ancient beliefs, the most important of which is Daoism. Daoist belief is based on the human body being a mini version of the universe. There is also a belief of vital energy known as “Qi” flowing through the body while performing several functions to help in health maintenance (Cosio and Lin 2016).

Acupuncture is a component of TCM in which needles are utilised with pressure being applied to certain points on the body to regulate and adjust the body's flow of energy which then improves health in various aspects (Goodwin 2016). A systematic review was conducted to evaluate the efficacy of acupuncture in treating the core symptoms of autism as well as communication skills, cognition, functioning and quality of life in those with autism, additionally aimed at determining adverse effects in the use of acupuncture (Cheuk *et al.* 2011). Acupuncture was seen to be beneficial in the management of autism, but current evidence of the treatment remains insufficient and limited. Reviews of research conducted suggest that acupuncture improves cognitive and global functioning, communication skills, expressive and receptive language, social initiation and adaptation, motor skills, attention span and functional independence. However, the reviews also suggest adverse effects such as bleeding, crying from fear of pain, irritability, sleep problems and excessive energy levels (Goodwin 2016).

2.3.8 Reflexology

Reflexology is a unique massage of a patients' feet by use of indicated thumb and finger techniques. The main theory is that feet are seen as the micro-system of the entire body and by exerting certain pressure on indicated sections of the patient's feet an effect on that specific part of the body is felt (Chambers *et al.* 2019).

Reflexology provides an effective and non-disturbing form of management for one of the most commonly occurring symptoms of autism which is constipation. A study was conducted to determine the effect of foot reflexology on autism symptoms and constipation in children who have autism spectrum disorder. Thirty children were recruited for the study. The data showed autistic children who were treated with foot reflexology experienced less symptoms and a less degree of severity of constipation compared to before receiving the treatment (Ghoneim *et al.* 2019).

2.4 Other Common Therapies Used to Manage or Treat Symptoms of Autism

2.4.1 Omega 3 Fatty Acid Supplementation

This is a group of polyunsaturated fats which are essential for certain functions in the body; having a deficiency of these fatty acids can possibly contribute to the aetiology of autism and suggestions are that supplementation can improve the symptoms of autism (Goodwin 2016).

A reviewer of studies done to prove efficacy of omega 3 fatty acid supplementation in treatment of autism determined that there was no evidence that this influenced the symptoms of autism, however due to the small number of studies included in the review the conclusion cannot be used to determine the actual efficacy of omega 3 supplementation in the treatment of autism (Goodwin 2016).

2.4.2 Gluten and Casein Free diet

This diet is quite popular amongst the autistic community due to its reports on efficacy in treating symptoms of autism. The main aim is to eliminate food that contains gluten and casein from the diet (Goodwin 2016).

The conclusion drawn from studies done to prove the efficacy of this diet in treating symptoms of autism suggests that there is insufficient evidence to recommend the gluten and casein free diet for treating autism and that the popularity was largely due to a placebo effect (Hurwitz 2013).

2.4.3 Music Therapy

Music therapy for autism is based on a concept that every human is born with a communicative musicality which assists us in non-verbal communication. Music therapy aims to help autistic children to improve their communication and expression ability through music (Goodwin 2016).

Reviewers of studies in music therapy in relation to treating autism symptoms suggest that it may be an effective method for treating social communication and interaction deficits in autism and has proven to be superior to conventional treatment in this regard. However, long-term effects of music therapy on symptoms of autism require further research (Geretsegger *et al.* 2014).

2.5 Reason Parents Seek or Benefit from CM Modalities for Their Children

As autism is a disorder of unknown aetiology with no cure, there is variety of treatments used to manage the disorder (Praful 2014). There are many conventional treatments to manage the disorder but due to the heterogeneity of autism, the one treatment that may work for one child may not for another child. This is one of the reasons parents seek CM treatment for their autistic children (Goodwin 2016). In conventional treatment the side effects of the drugs prescribed to treat autism like atypical and typical anti-psychotics,

anti-depressants, mood stabilizers and stimulants have unwanted side effects and therefore some parents prefer to turn to CM treatments which exclude the likelihood of side effects and benefit the child in the long run. CM treatments are being utilised more now has and have been shown to have a great positive impact on patients' lives (Cobb, 2016). Although CM treatment options are popular, they have not been empirically proven to be effective in the treatment of autism (Goodwin 2016).

2.6 Other Perception Studies

2.6.1 Daphne (1997)

Daphne (1997) conducted a survey to determine the perceptions of pharmacists towards CM in the context of health care in South Africa. The data obtained showed a limited number of pharmacists obtain CM education during their studies, although 84.4% felt that CM should be included in their course curriculum. The CM modalities covered were ayurveda, osteopathy, chiropractic, acupuncture, reflexology, herbalism, aromatherapy. Most of the pharmacists in the study knew very little to nothing about these modalities yet the majority knew a reasonable amount about homoeopathy and felt it was more effective compared to other CM modalities. Most pharmacists considered CM as supportive. The main conclusion made was that although there was a general positive attitude towards CM in pharmacists, the fact that they had limited knowledge made them hesitant to prescribe it for patients.

A total of 725 questionnaires were sent out to pharmacies across South Africa, and 160 questionnaires were received back. The low response rate was due to the lack of knowledge on this topic with a general perception that CM is not worth the time spent answering the questionnaire. Therefore, the study cannot serve as a representation of pharmacists in South Africa, and findings could represent an incorrect view of the knowledge of CM amongst pharmacists in South Africa.

This highlights the fact that non-CM professionals feel less confident in using CM in general compared to CM professionals. Overall, both CM professionals and non-CM professionals seem to be needing more education in the field.

2.6.2 Sukdev (1998)

Sukdev (1998) conducted a study to determine the perception of medical practitioners towards the role of CM in health care within South Africa. The main CM modalities referred to were chiropractic, homoeopathy, acupuncture, reflexology, ayurveda, herbalism, aromatherapy, and osteopathy. One thousand questionnaires sent out with a response rate of 32.2%.

The data showed very limited knowledge of individual CM modalities amongst medical practitioners and very few of these practitioners use CM modalities in practice. This lack of sufficient knowledge and poor efficacy seemed to be a limitation and if this can be resolved it may promote usage of CM amongst medical practitioners. In the study it was also noted that most of the participants viewed CM as supportive, and only a minority viewed it as a primary form of medicine.

Conclusions from the above study showed evidence of the lack of knowledge on CM and a great need to educate medical practitioners while providing proof of efficacy. The outstanding finding was that most medical practitioners had no issue with CM being involved in the health care system of South Africa. The same finding has been obtained in the current research study amongst CM professionals as they seem keen to the use these modalities for autism.

This study highlights the common fact that all professionals require more knowledge and education in the field of CM.

2.6.3 Cobb (2016)

A survey to determine attitudes towards CM was conducted at Marshall University in Virginia. The focus was CM in psychological disorders. Of 89 questionnaires distributed, 79 were considered appropriate for using due to several factors such as incompleteness or falling under the exclusion criteria.

The data concluded that more people from the general population in the US are learning more about CM and medical schools are beginning to implement CM into their courses for physicians. This highlights how CM usage is increasing in the Western world. The results of this study and similar studies can contribute to the knowledge of CM and provide patients and physicians with more information about available CM treatment options available.

The current study links to the finding that CM professionals seem to be using CM for autism as shown in the results and show that more education in the field of CM for specific disorders can generate more usage to help treat various conditions.

Chapter 3: Material and Methods

3.1 Study Design

A quantitative descriptive research survey in the form of a web-based survey (Google Docs®) was conducted. This research design allowed the researcher to gather large amounts of data which could be analysed for frequencies, averages, and patterns. The research aimed to easily quantify the problem by way of generating numerical data with the aim of creating a generalised idea of the results obtained from a large sample population. The research also aimed to gain an understanding of the knowledge, attitudes, and practices of South African CM professionals with regards to using or recommending CM treatment for autism patients.

3.2 Study Location

The study was confined to registered CM professionals in South Africa who belong to the relevant associations falling under Allied Health Profession Council of South Africa. Gate keeper permission was obtained from the respective head principal (Registrar) of the AHPCSA and not the participants. Members of the following associations who must be registered with AHPCSA took part in the survey: AromaSA, HSA, SAACMA and SANA.

3.3 Study Population

The population for the research was the four types of registered CM professionals in South Africa namely aromatherapists, homoeopaths, naturopaths, and acupuncturists. The researcher chose these four types of CM professionals since current literature suggests that these are the most commonly used CM professionals by autism patients. Before commencement of the study, the population of the above four registered CM professionals in South Africa, according to the AHPCSA respective associations' register'

was determined to be 282. This number was obtained by the researcher contacting the president of the respective associations to confirm member numbers.

3.3.1 Inclusion Criteria for Complementary Medicine Professionals

- Registered aromatherapists, homoeopaths, naturopaths, and acupuncturists.
- Participants practicing in South Africa.
- Participants who use English as a preferred language.

3.3.2 Exclusion Criteria for Complementary Medicine Professionals

- Unregistered aromatherapists, homoeopaths, naturopaths, and acupuncturists.
- Participants who do not practice in South Africa.
- Participants who do not use English as a preferred language.

3.4 Study Sample

A sample size of 282 CM professionals was targeted, and a total of 132 CM professionals participated in the study, a response rate of 46.8%. This came very close to the response distribution of 50% which was initially anticipated. The researcher was re-directed to relevant associations to send out the survey therefore the sample size had to be reduced to members of the relevant associations

3.5 Ethics

Without coercion, participants were able to read through an information letter. Information about how consent was to be given was contained in the information letter and on the first page of the online survey. Before commencing with filling out the web-based survey, participants were informed that they are free to withdraw from the study at any given time.

Confidentiality and anonymity of participants were always maintained. No names, addresses or other information that could allow identification was required on the survey. The answers from each survey were regarded as strictly confidential.

Only the researcher and supervisors have access to any information collected, all files are locked up in the research room and all data electronically recorded are saved with password protect and will be deleted after 5 years.

All data collected is stored at the Durban University of Technology: Department of Homoeopathy for 5 years and thereafter will be shredded.

3.5.1 Validity

Validity refers to how well a survey measures what it sets out to measure. There are four ways to assess validity namely:

1. Face validity.
2. Content validity.
3. Criterion validity.
4. Construct validity.

Face validity was as accomplished by showing the survey to untrained individuals to see whether they approved of the items. In the pilot study participants evaluated whether the questions in the survey addressed the issue at hand and whether the questions made sense to the participants (Litwin 1995).

3.5.2 Reliability

Reliability refers to the degree of stability portrayed when a measurement is repeated under identical conditions. There are three ways to assess reliability, namely:

1. Test-retest reliability.
2. Alternate-form reliability.
3. Internal consistency reliability.

In this instance, the survey used alternate form to confirm reliability by using differently worded questions to measure the same attribute. Questions were reworded in more than one way, not changing the meaning of the question. This ensured reliability as one aspect was measured in two separate questions confirming the participant had provided reliable answers (Litwin 1995).

The final way the researcher ensured both validity and reliability were to ensure that all data collected was analysed and represented and interpreted in the same way by using the same data collection and analysis tools.

3.6 Methodology

3.6.1 Pilot Study

A small-scale preliminary experiment was conducted prior to the commencement of the full-scale research study. The purpose of conducting this study was to assess the reliability of the research protocol in gathering relevant data for the study. It helped to evaluate the research survey to determine whether the questions were relevant, practical, or required modification. The feedback was utilised by the researcher and the survey questions were adjusted accordingly. For this pilot study the researcher recruited three participants who were not included in the full-scale study. A letter of information together with informed consent for the pilot study was sent via email to the three participants before the questionnaire was answered.

3.6.2 Distribution of Questionnaires

Data was obtained in the form of a web-based survey and was distributed via AHPSCSA's respective associations through a survey advert which contained a hyperlink to the study. The researcher had contacted AHPSCSA via email to obtain gatekeeper permission. Before data collection, gatekeeper permission was obtained from the principal (Registrar) of AHPSCSA via email. Once gatekeeper permission was obtained from AHPSCSA the data

collection process began. The respective associations were asked via email to send out the survey advert to all registered CM professionals in SA who fall under the inclusion criteria via their website, via email or social media page.

The web-based survey hyperlink invitation along with the information letter was sent to all registered CM professionals who fell under the inclusion criteria. The survey required the participant to read through the information letter attached to the survey advert before proceeding to the hyperlink to answer the survey. The survey remained open for 14 weeks, the length of time of 8 weeks had to be increased to 14 weeks due to the lack of sufficient responses at 8 weeks. A reminder via email was sent out three times in the duration of 14 weeks to the respective associations to request more participants to improve the response rate.

The researcher was not present while the participants filled out the survey. Any incomplete surveys were not approved by the programme itself. No identification or personal information links were added to the survey. The researcher remained available for any questions by arrangement telephonically or via email as per preference of the participant. However, no participants made contact with the researcher.

3.6.3 Responses Received from Questionnaires

Out of the expected 282 responses from all members belonging to the AHPCSA relevant associations, 132 responses were analysed

3.6.4 Data Capture

After the 14 weeks of running the online survey, the survey was closed, and the data was cross tabulated in Microsoft Excel.

3.6.5 Data Analysis

Results were analysed by utilising IBM SPSS version 27 program for Window and Excel by a qualified statistician (Tonya Esterhuizen M.S.C [Epidemiology] [Biostatistics], 2021).

3.6.5.1 Statistical Tests Used

Descriptive objectives were analysed with frequency tables and bar charts to summarise categorical variables. Associations between two categorical variables were tested using Fisher's exact tests. A p value < 0.05 was considered as statistically significant.

Association between the use of CM for autism and satisfaction rate in the use of CM in autistic patients was assessed using Fishers exact tests.

3.7 Data Collection

3.7.1 Informed Consent

A description of how informed consent would be obtained was given in the information letter and on the first page of the online survey. The information letter was sent with the survey advert containing the hyperlink to the online survey. The informed consent was obtained by clicking NEXT and proceeding to the first question. By doing this, participation was regarded as consent given to partake in the study. The beginning of the survey on Google Docs® contained clear explanations. The decision for not using hand signed consent letters that would require printing, signing, scanning, and emailing back to the researcher was taken to increase participant compliance to obtain more data for the research study. This was done in a similar survey-based study (Miller 2019).

3.7.2 Confidentiality

The online survey on Google Docs® did not require any personal information from the participant therefore there was no way to jeopardise participant's anonymity. The Google

Docs® site did not link any information about any participants email address to the survey which was completed therefore no links could be made to participants identity from the completed surveys.

Chapter 4: Results

4.1 Introduction

After data cross tabulation into Microsoft Excel, IBM SPSS Version 27 was used to analyse the data (SPSS Inc., Chicago, Illinois, USA). A p value < 0.05 was considered to be statistically significant.

Descriptive objectives were analysed using frequency tables and bar charts in places of categorical variables.

Associations between use of CM for autism and satisfaction of treatment by means of CM from CM professionals were assessed using Fishers exact tests.

4.1.1 Results

One hundred and thirty-two online surveys were completed and used for analysis out of the expected two hundred and eighty-two, a response rate of 46.8%.

4.1.2 Objectives

- To determine the extent of knowledge in CM professionals on CM modalities in the treatment of autism.
- To determine the general attitude in CM professionals towards recommending CM for autism.
- To determine the practices of CM professionals on the use of CM modalities for autism.
- To determine the confidence levels of CM professionals in the use or recommendation of CM modalities for the treatment of autism.

- To determine the perception of CM professionals on CM modalities in the treatment of autism.
- To compare the use of CM for autism with the satisfaction rate in treatment from CM professionals.

4.2 Overview of results

4.2.1 Demographics

4.2.1.1 Participant Profession

Table 4.1: Participant profession

	Frequency	Percentage
Homoeopath	61	46.2%
Aromatherapist	29	22.0%
Naturopath	23	17.4%
Acupuncturist	14	10.6%
Homoeopath, Acupuncturist	2	1.5%
Naturopath, Acupuncturist	1	0.8%
Homoeopath, Naturopath	1	0.8%
Aromatherapist, Homoeopath	1	0.8%

Table 3 shows that the majority of participants were homoeopaths (46.2%), aromatherapists 22.0%, naturopaths 17.4%, and acupuncturists 10.6%. Five participants had more than one profession in CM which made up 3.9%.

4.2.1.2 Age Distribution

Table 4.2: Age distribution of participants

	Frequency	Percentage
25-35 years old	40	30.3%
36-45 years old	56	42.4%
46-55 years old	14	10.6%
56 years or older	22	16.7%

Table 4.2 shows that the majority of participants fell in the 36-45 years old category (42.4%), while 30.3% fell in the 25-35 years old category, 16.7% were 56 years or older, and 10.6% fell in the 46-55 years old category.

4.2.1.3 Years in practice

Table 4.3: Participants' years in practice

	Frequency	Percentage
1-5 years	28	21.2%
6-10 years	30	22.7%
11-15 years	38	28.8%
16-20 years	16	12.1%
21-25 years	12	9.1%
26-30 years	4	3.0%
31+ years	4	3.0%

Table 4.3 shows that the majority of participants had been in practice between 11 and 15 years (28.8%), 22.7% between 6 and 10 years, 21.2% between 1 and 5 years, 12.1% between 16 and 20 years, 9.1% of between 21 and 25 years, 3.0% between 26 and 30 years, and 3.0% for 31 years or longer.

4.2.1.4 Province of practice

Table 4.4: Participants' province of practice

	Frequency	Percentage
Eastern Cape	4	3.0%
Gauteng	57	43.2%
KwaZulu-Natal	33	25.0%
Northwest	5	3.8%
Western Cape	33	25.0%

Table 4.4 shows that the majority of participants practised CM in Gauteng (43.2%), KwaZulu-Natal and Western Cape participants made up 25.0% each, Northwest province made up 3.8%, and Eastern Cape 3.0%. There were no participants from Mpumalanga, Limpopo, Northern Cape, and Free State.

4.2.2 Knowledge of CM for Autism

Table 4.5: Participants knowledge on the use of complementary medicine for autism

No		Yes	
Frequency	Percentage	Frequency	Percentage
56	42.4%	76	57.6%

As highlighted in Table 4.5 and Figure 4.1, the majority of participants said Yes to them having enough knowledge to use CM as treatment for autism (57.6%), and the minority said No (42.4%).

10.As a Registered Complementary Medicine Professional, do you feel you have enough knowledge to treat autism patients?

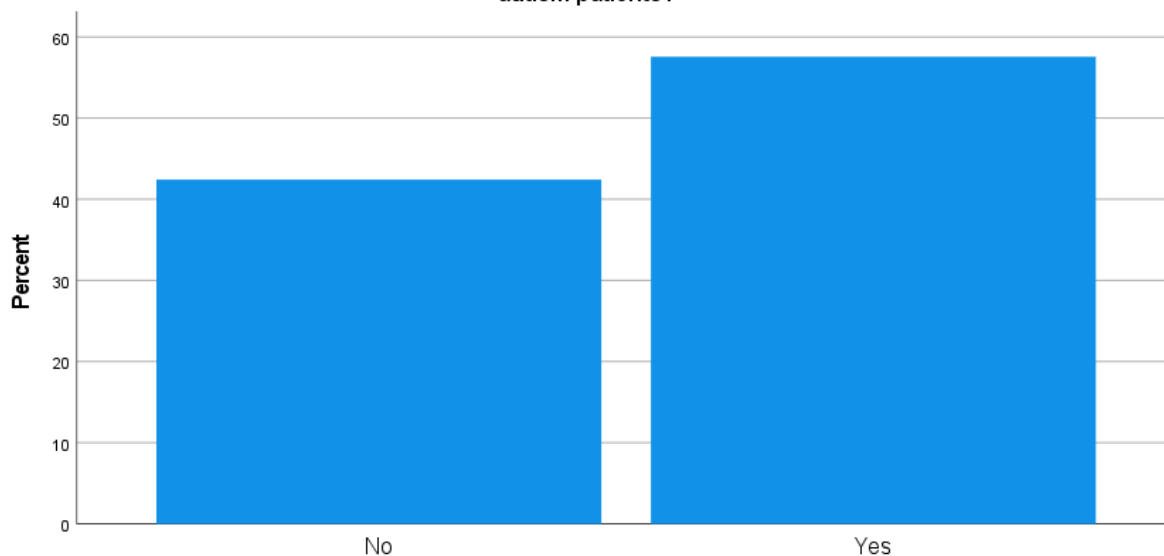


Figure 4.1: Participants' knowledge on the use of complementary medicine for autism

4.2.3 Need for more Knowledge on Complementary Medicine for Autism

Table 4.6: Need for more information in complementary medicine and autism

No		Yes	
Frequency	Percentage	Frequency	Percentage
1	0.8%	131	99.2%

Table 4.6 and Figure 4.2 show that almost all the participants reported Yes to the need for more knowledge or information on CM for autism (99.2%), while 0.8% said No there is no need for more information about CM and autism.

16. Do you feel more information about this increasingly growing field needs to be made available to you and other Complementary Medicine Professionals?

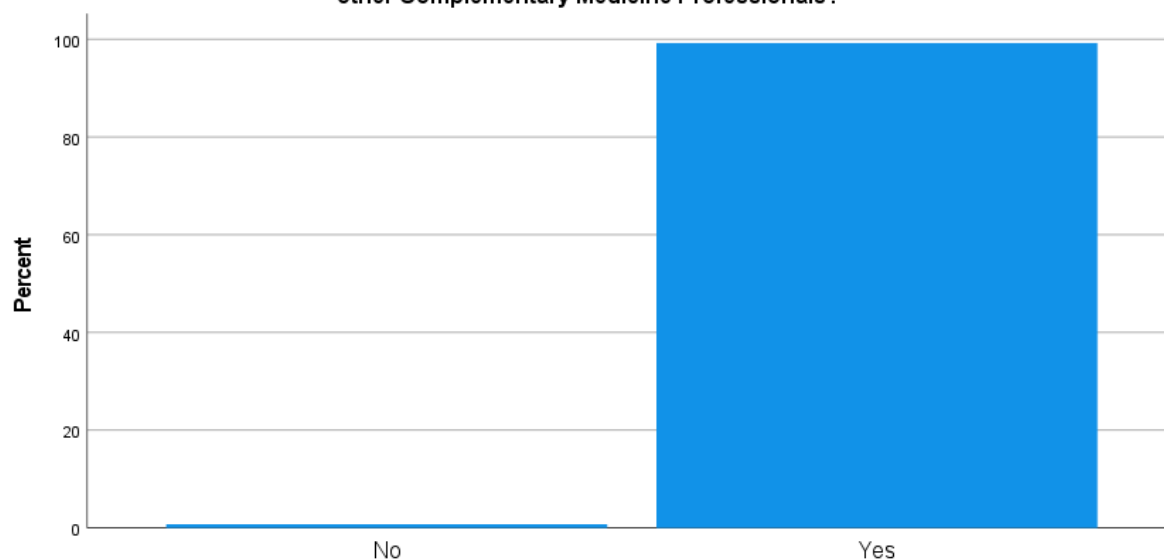


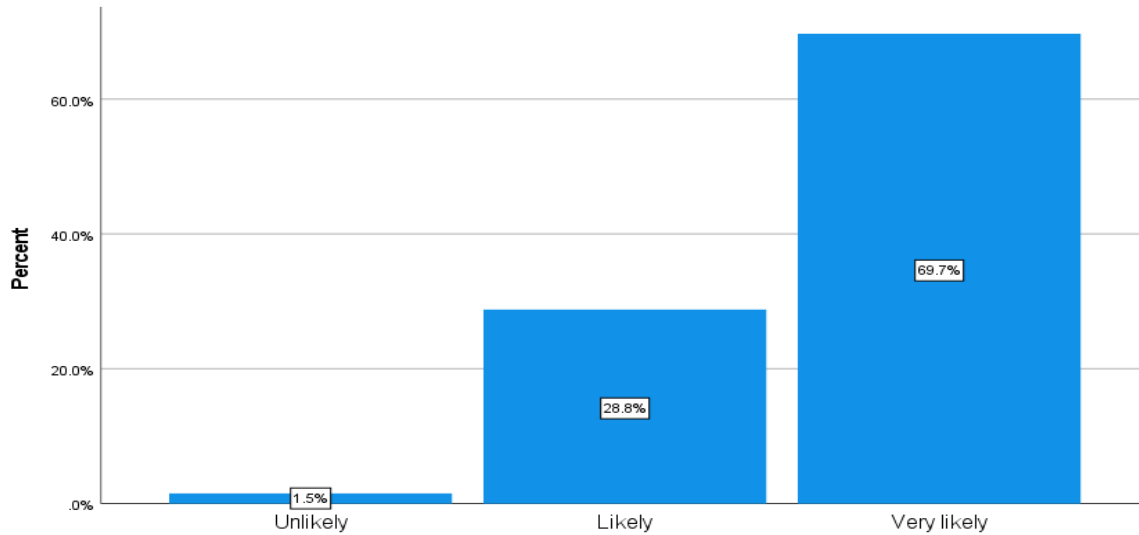
Figure 4.2: Need for more information in complementary medicine and autism

4.2.4 General Attitude of Complementary Medicine Professionals in Recommending Complementary Medicine for Autism

Table 4.7: Participants recommendation on the use of complementary medicine for autism

Unlikely		Likely		Very likely	
Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
2	1.5%	38	28.8%	92	69.7%

Table 4.7 and Figure 4.3 show that the majority of participants were very likely to recommend CM for autism (69.7%), 28.8% were likely to recommend CM, and 1.5% were unlikely to recommend CM.



7. How likely is it that you would recommend Complementary Medicine for treating autism?

Figure 4.3: Participants' recommendation of the use of complementary medicine for autism

4.2.5 Practices

4.2.5.1 Autistic Patients Seen

Table 4.8: Autistic patients seen by participants

	Frequency	Percentage
1-10	59	44.7%
11-20	17	12.9%
21-30	6	4.5%
31-40	1	0.8%
None	49	37.1%

Table 4.8 and Figure 4.4 show that the majority of participants reported had seen between 1 and 10 autistic patients (44.7%), 37.1% reported not having seen any autistic patients, 12.9% had seen between 11 and 20, 4.5% had seen between 21 and 30, and 0.8% had seen between 31 and 40.

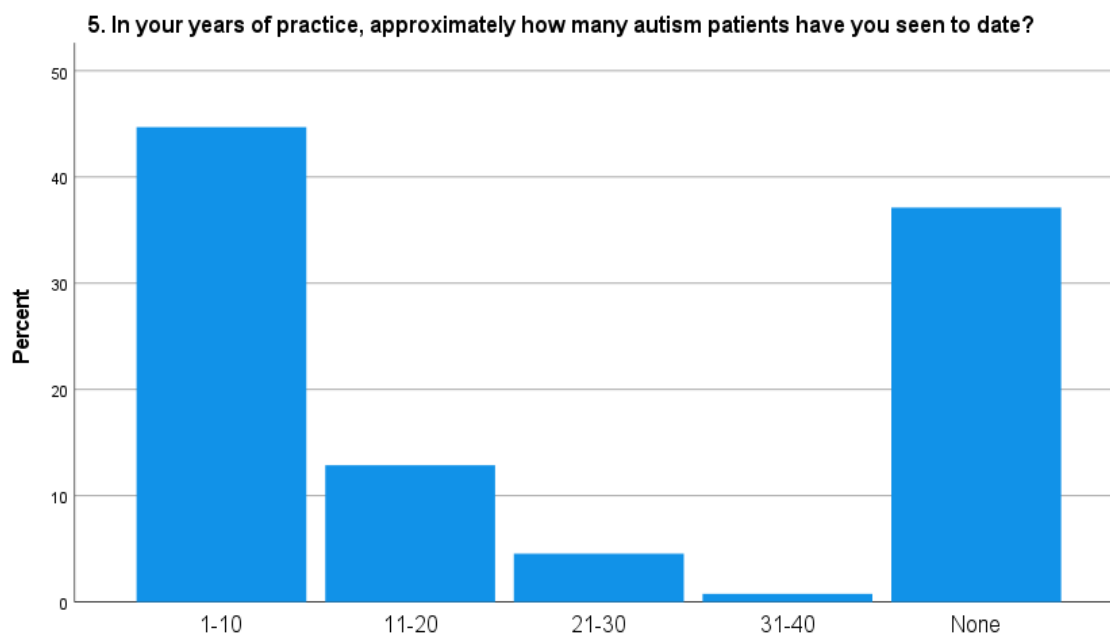


Figure 4.4: Autistic patients seen by participants

4.2.5.2 Promoting of Complementary Medicine in Autistic Patients

Table 4.9: Participants promotion about use of complementary medicine for autism

	Frequency	Percentage
Always	65	49.2%
Never	43	32.6%
Sometimes	24	18.2%

Table 4.10 and Figure 4.5 show how often participants talk about CM treatment options for autism. The majority of participants reported that they ALWAYS speak about CM for autism (49.2%), 32.6% reported NEVER speaking about CM for autism, and 18.2% of participants spoke about CM for autism SOMETIMES.

14. How often do you talk about other Complementary Medicine options for treating symptoms of autism?

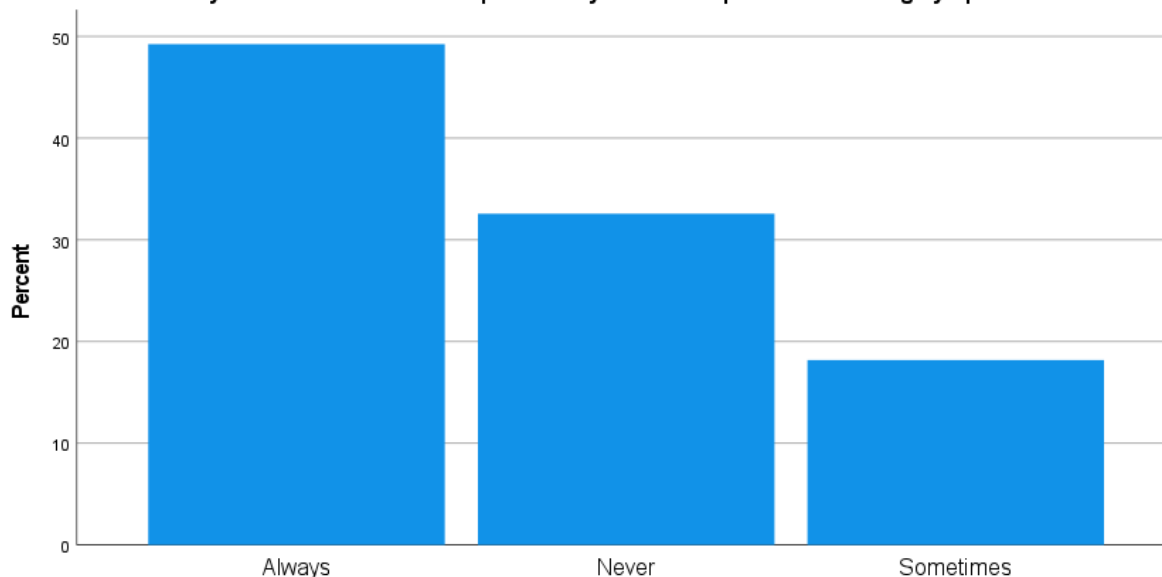


Figure 4.5: Participants' promotion complementary medicine for autism

4.2.5.3 Type of Complementary Medicine Recommendations for Autistic Patients

Table 4.10: Recommending fields of complementary medicine for autism

	Frequency	Percentage
Aromatherapy	92	69.7%
Homoeopathy	101	76.5%
Naturopathy	89	67.4%
Ayurveda	35	26.5%
Chiropractic	15	11.4%
Phytotherapy	77	58.3%
Massage	60	45.5%
Reflexology	67	50.8%
Unani-Tibb	19	14.4%
Chinese and acupuncture	44	33.3%
Music	3	2.3%
None	2	1.5%

Table 4.7 and Figure 4.3 show that the most recommended field for treating autism (in descending order), as reported by participants, was homoeopathy (76.5%), followed by aromatherapy (69.7%), naturopathy (67.4%), phytotherapy (58.3%), reflexology (50.8%),

massage therapy (45.5%), Chinese medicine and acupuncture (33.3%), unani-tibb (14.4%), ayurveda (26.5%), chiropractic (11.4%), music therapy (2.3%) and 1.5% reported not recommending any CM for autism.

4.2.6 Confidence levels of Complementary Medicine Professionals

4.2.6.1 General Confidence in Using Complementary Medicine to Treat Autism

Table 4.11: Confidence of participants in understanding how complementary medicine can treat autism

	Frequency	Percentage
Maybe	47	35.6%
No	19	14.4%
Yes	66	50.0%

Table 4.11 and Figure 4.6 show that the majority of participants were confident in their understanding on how to use CM for autism and said YES, they understand (50.0%), while 14.4% said NO they were not, and 35.6% of participants were unsure.

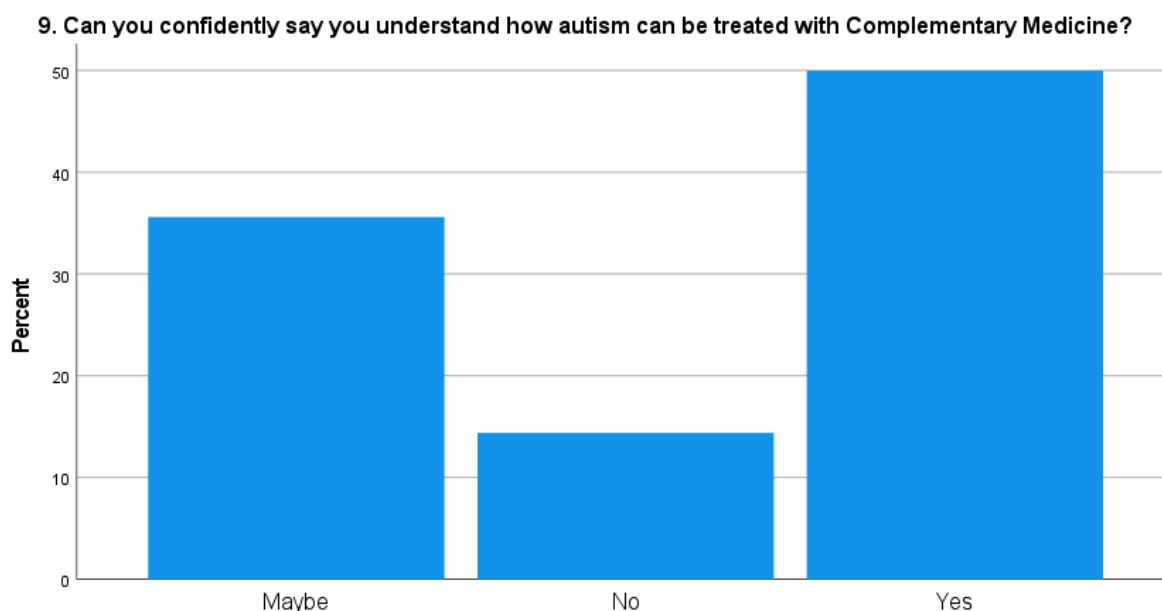


Figure 4.6: Confidence of participants in understanding how complementary medicine can treat autism

4.2.6.2 Association between confidence levels and research on Complementary Medicine for autism

Table 4.12: Confidence on the usage of complementary medicine for autism and the need for more research to be done in this field

	Frequency	Percentage
Research would not make a difference to confidence	5	3.8%
No there is enough research to back it	5	3.8%
Yes, this field needs a lot more research	122	92.4%

Table 4.12 and Figure 4.7 shows that the majority of participants felt they would be more confident if more research studies were conducted on CM for autism (92.4%), 3.8% of participants said research in this field would not make a difference to their confidence in using CM for autism, and 3.8% said NO research is needed as there is enough research already in this field.

12. Would you be more confident in the use of Complementary Medicine for autism if more research was done around it?

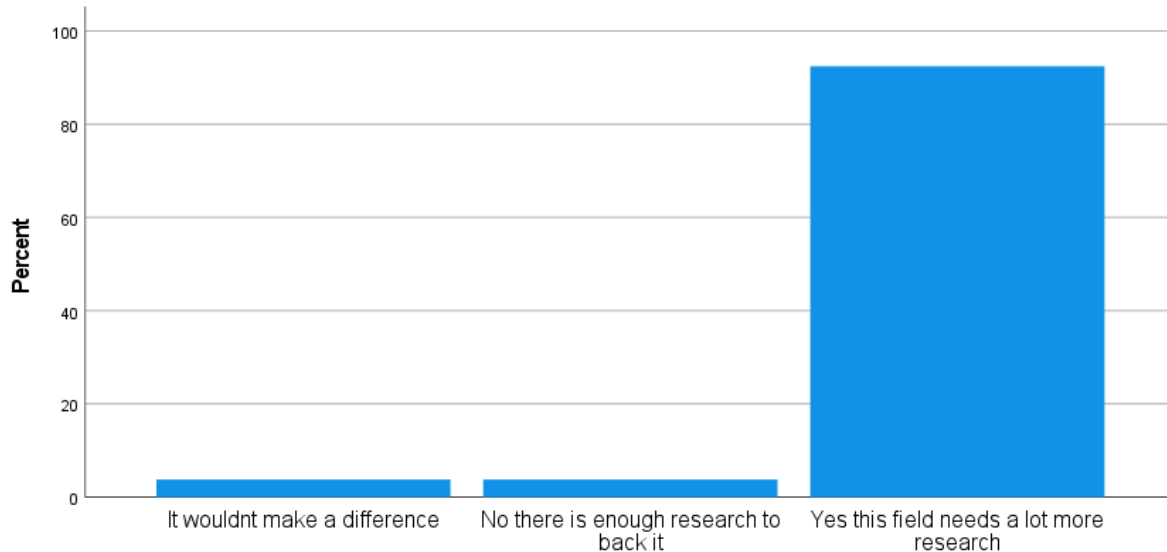


Figure 4.7: Confidence on the usage of complementary medicine for autism and the need for more research to be done in this field

4.2.7 Perception of CM for Autism

4.2.7.1 Views on Uses of Complementary Medicine Treatment for Autism

Table 4.13: Views on the use of complementary medicine for treating autism

	Frequency	Percentage
First Choice treatment for autism	34	25.8%
Of no value in autism	1	0.8%
Supportive treatment for autism	97	73.5%

Table 4.13 and Figure 4.8 show that the majority of participants viewed CM for treating autism as supportive treatment (73.5%), 25.8% viewed CM use for autism as first choice treatment, and 0.8% viewed CM as of no value for autism.

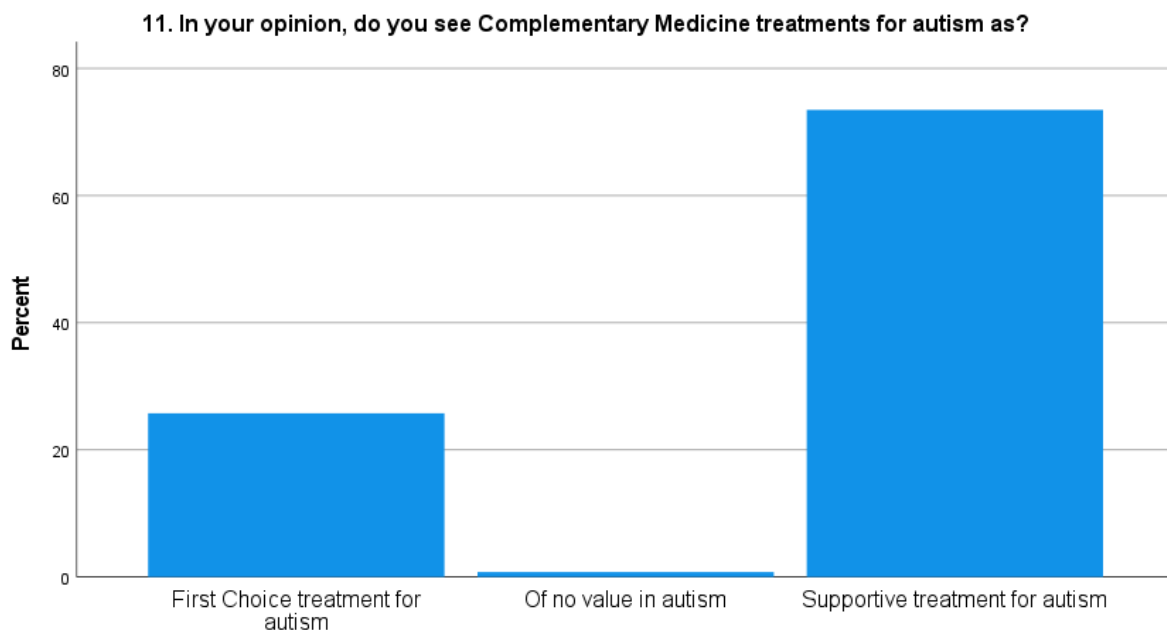


Figure 4.8: Views on the use of complementary medicine for treating autism

4.2.7.2 Views on Improvement in Symptoms of Autism using Complementary Medicine

Table 4.14: Views on improvement of symptoms in autism by using complementary medicine

	Frequency	Percentage
No	2	1.5%
Yes	110	83.3%
Unsure	20	15.2%

Table 4.14 and Figure 4.9 show that the majority of participants said YES, the usage of CM helps to improve symptoms of autism (83.3%), 1.5% said NO the usage of CM does not help improve symptoms and 15.2% were unsure about whether CM for autism result in improvement.

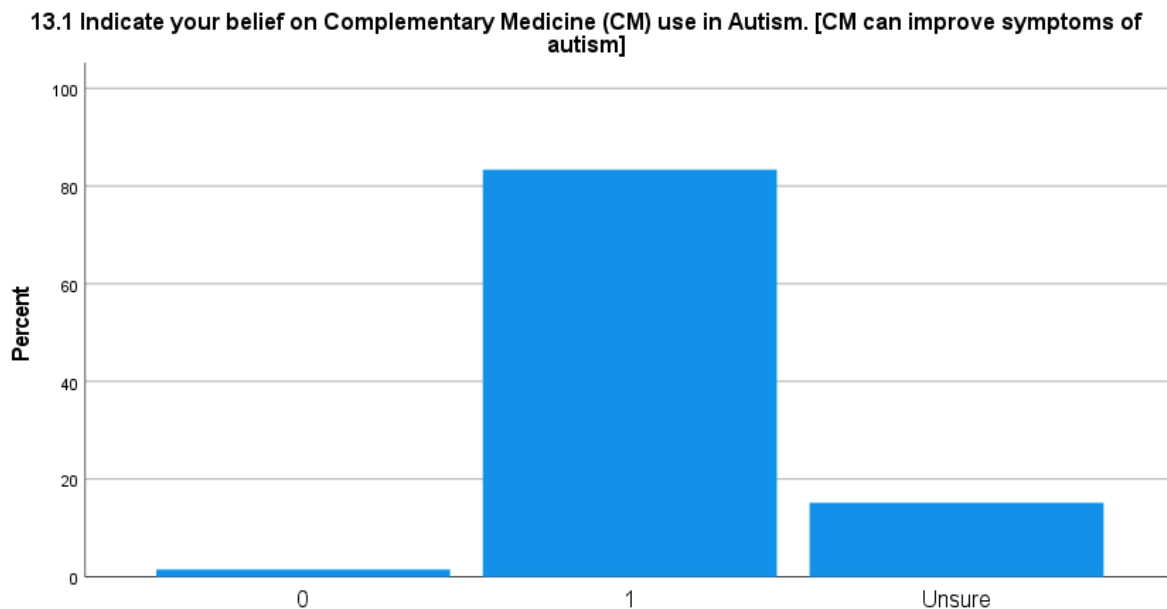


Figure 4.9: Views on improvement of symptoms in autism by using complementary medicine

4.2.7.3 Views on using Complementary Medicine after conventional methods for autism

Table 4.15: Views on the use of complementary medicine for autism after usage of conventional methods

	Frequency	Percentage
No	97	73.5%
Yes	10	7.6%
Unsure	25	18.9%

Table 4.15 and Figure 4.10 show that the majority of participants answered NO to the statement that CM for autism should be used only after conventional methods have been used (73.5%), 18.9% of participants were unsure about whether they agree or disagree with the statement and 7.6% of participants answered YES to the statement.

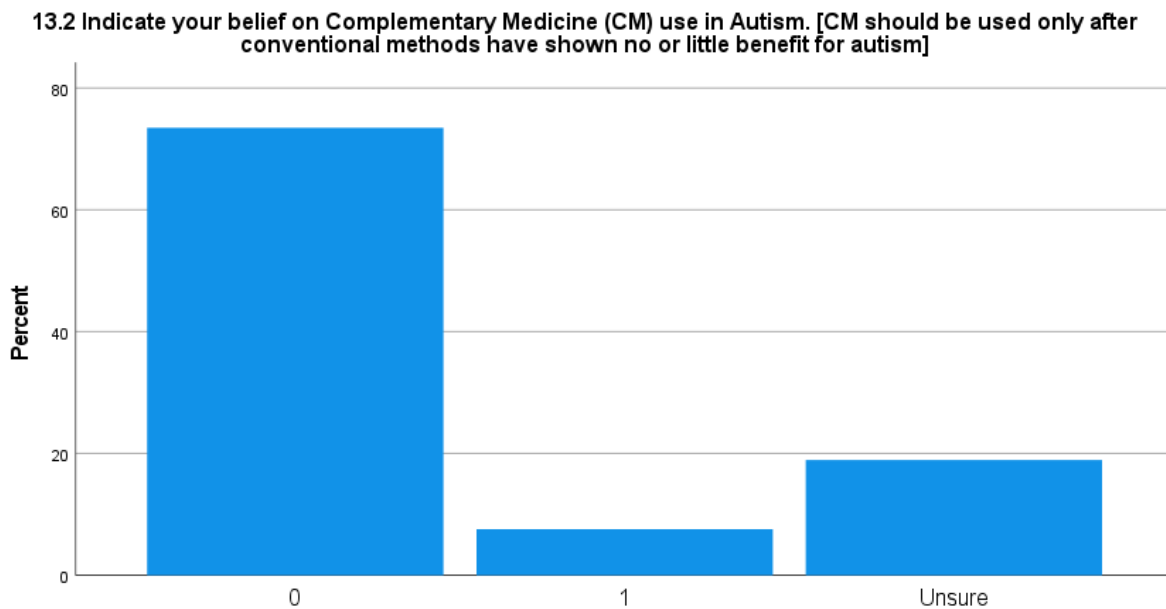


Figure 4.10: Views on the use of complementary medicine for autism after usage of conventional methods

4.2.7.4 Views on using Complementary Medicine with Conventional Methods for Managing Autism

Table 4.16: Views on the use of complementary medicine with conventional methods for autism

	Frequency	Percentage
No	28	21.2%
Yes	64	48.5%
Unsure	40	30.3%

Table 4.16 and Figure 4.11 show that the majority of participants answered Yes to the statement on using CM together with conventional methods for treating autism (48.5%), 30.3% of participants were unsure about this statement, and 21.2% answered No to this statement.

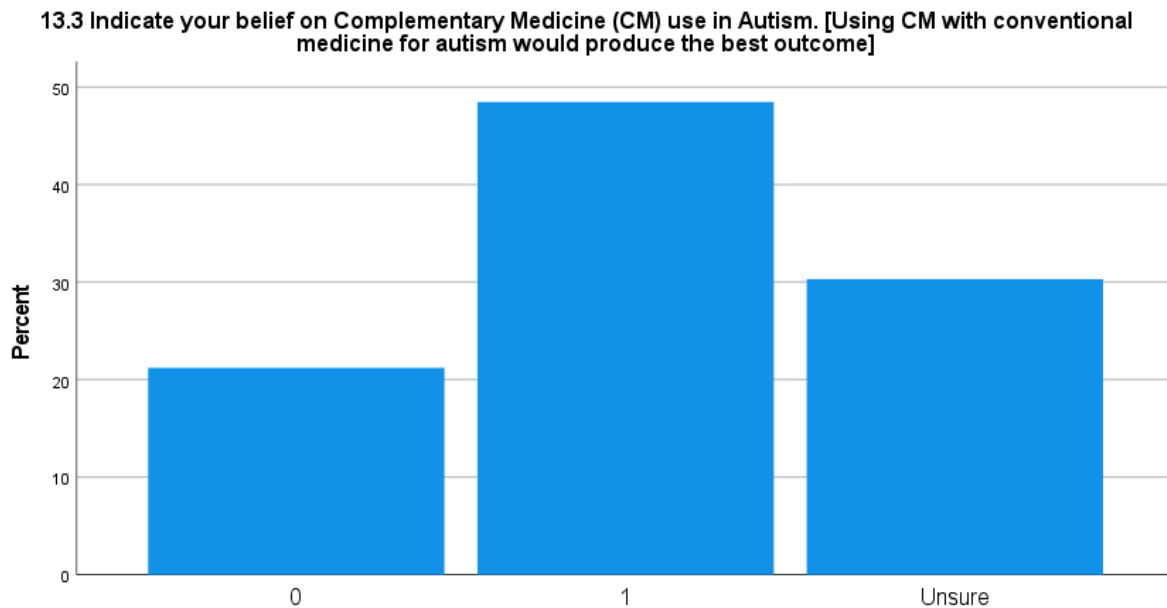


Figure 4.11: Views on the use of complementary medicine with conventional methods for autism

4.2.7.5 Views on Complementary Medicine Being Safe for Usage in Autism

Table 4.17: View on complementary medicine safety in the usage for autism treatment

	Frequency	Percentage
Yes	119	90.2%
No	0	0%
Unsure	13	9.8%

Table 4.17 and Figure 4.12 show that the majority of participants viewed CM as being safe for use in autism (90.2%), 9.8% were unsure, and no participants felt it was unsafe to use for autism.

113.4 ndicate your belief on Complementary Medicine (CM) use in Autism. [CM is completely safe to use for autism]

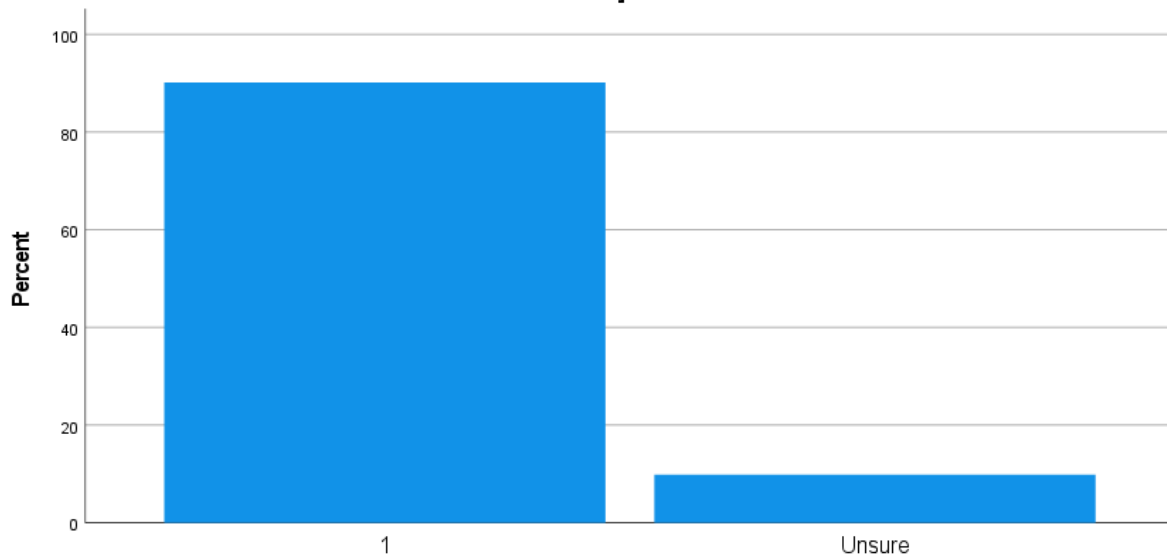


Figure 4.12: View on Complementary Medicine safety in the usage for autism treatment

4.2.8 Use of Complementary Medicine for Autism in Complementary Medicine Professionals

Table 4.18: Past recommendation of complementary medicine for autism

	Frequency	Percentage
Yes	84	63.6%
No	44	33.3%
Maybe	4	3%

Table 4.18 and Figure 4.13 show that the majority of participants said YES, they have recommended CM for autism in their practice (63.6%), 33.3% of participants said NO they have not, and 3% said MAYBE they have.

6. Have you ever recommended any Complementary Medicine treatments for an autistic patient/s before?

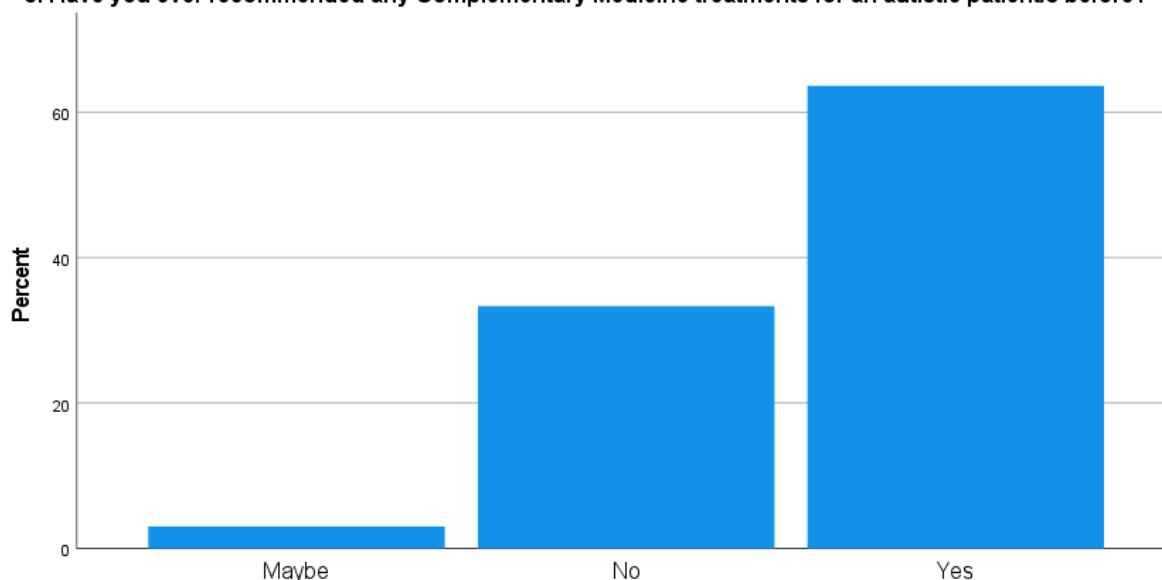


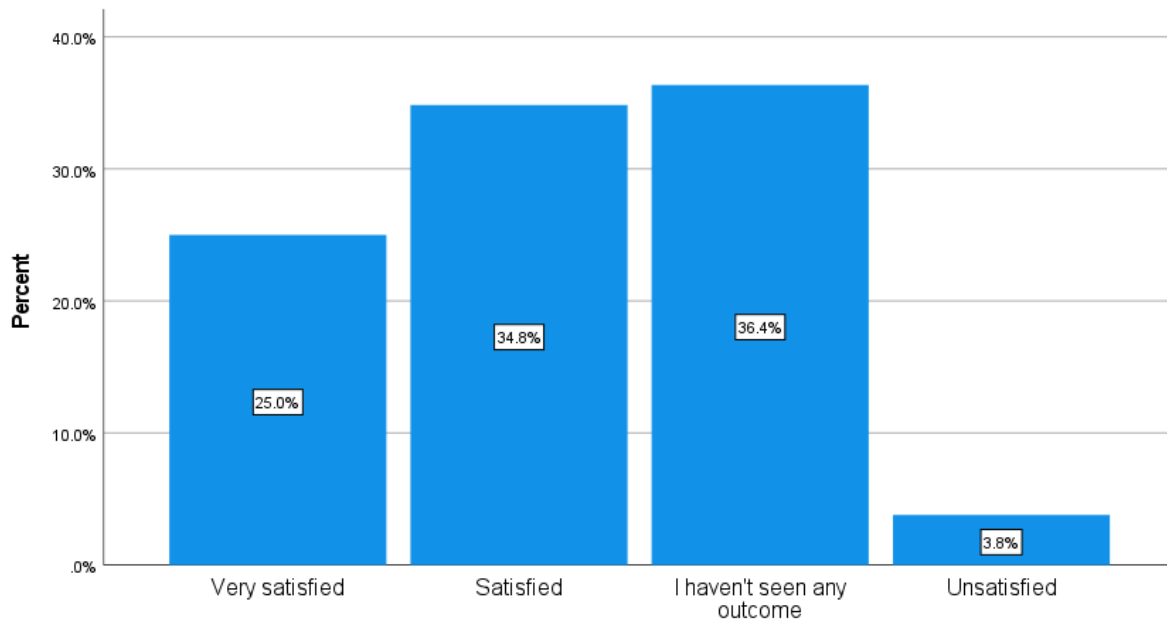
Figure 4.13: Past recommendation of complementary medicine for autism

4.2.9 Satisfaction of Complementary Medicine Professionals in Complementary Medicine Usage for Autism

Table 4.19: Satisfaction in the outcome of complementary medicine treatment of autistic patients

	Frequency	Percentage
Very Satisfied	33	25%
Satisfied	46	34.8%
Unsatisfied	5	3.8%
Very Unsatisfied	0	0%
I have not seen any outcome	48	36.4%

Table 4.19 and Figure 4.14 show that the majority of participants have not seen any outcome of CM treatment of autistic patients (36.4%), while 34.8% reported being satisfied with the outcome of CM treatment of autistic patients, and 25% were very satisfied with the outcome of CM usage in autistic patients. Only 3.85% of participants were unsatisfied with the outcome.



15. Overall, how satisfied are you with the outcome of autism patients who have used Complementary Medicine treatments?

Figure 4.14: Satisfaction in the outcome of complementary medicine treatment on autistic patients

4.2.10 Comparison Between Usage of Complementary Medicine for Autism and Satisfaction in Usage for Autism

Table 4.20: Association between participants recommendation of complementary medicine for autism and satisfaction in this recommendation

			Q15. Overall, how satisfied are you with the outcome of autism patients who have used Complementary Medicine treatments?				Total
			I have not seen any outcome	Unsatisfied	Satisfied	Very satisfied	
Q6. Have you ever recommended any Complementary Medicine treatments for an autistic patient/s before?	Maybe	Count	3	1	0	0	4
		%	75.00%	25.00%	0.00%	0.00%	100.00%
	No	Count	39	0	4	1	44
		%	88.60%	0.00%	9.10%	2.30%	100.00%
	Yes	Count	6	4	42	32	84
		%	7.10%	4.80%	50.00%	38.10%	100.00%
Total		Count	48	5	46	33	132
		%	36.40%	3.80%	34.80%	25.00%	100.00%

Table 4.20 shows that there was a strong statistical association between recommendation of CM for autism, and satisfaction rate ($p < 0.001$). Most participants who said they had recommended CM for autism were more likely to have been satisfied with this recommendation (50%), while participants who said NO to having recommended CM for autistic patients were more likely to have said they had not seen any outcome from treatment.

Table 4.21 is a selection of comments from participants on beliefs or practices.

Table 4.21: Comments from participants on beliefs or practices

"A colleague of mine who had an autistic son used CM effectively."
"A multidisciplinary approach would most likely have the greatest benefit. CM adds value from a holistic approach to treatment."
"As I have only seen two patients that were referred by family members it was a complementary approach used. However, they were not receiving any other treatment, left very unaided and unsupported by the Day Hospital. So, a focus on diet, supplementation and use of an occupational therapist. Would be good to number the questions so that comments around questions can be linked to the number. Thank you, look forward to the study results."
"Autism varies. Each person requires a holistic approach, both allopathic and complimentary."
"CAM approaches autism from a different perspective, every profession would have its own approach, and these are not antagonistic and can support one another for a more rounded, holistic approach."
"Can treat if needed but feel I would be more confident if more information was available i.e., research."
"CM assists with supporting systems that are over or under functioning in people who have autism."
"CM is a wonderful treatment approach with regards to the treatment of autism, whether it is used as a primary option or in conjunction with conventional therapies or other allied therapies such as occupational therapy, psychology and speech therapy. From personal experience I have seen how, either through my own experience or through cases seen to by colleagues and friends, how children with autism have gone from being mute to attempting to communicate, become calmer and less fussy."
"Complementary Medicine (CMA) can be used as an adjunct therapeutic protocol for patients with autism"
"Fairly new in practice, still need to read up more about autism."
"Have seen improvements but never full course of treatments that may have resulted in full recovery"
"Homoeopathic constitutional remedy together with occupational therapy has optimal results."
"Homoeopathy can safely be used to assist autism patients. Not sure on the safety of other CM methods, but a complementary approach could be useful, but it would be great to have more research done on different CM methods and their effects on autistic patients."
"Homoeopathy is effective in managing the symptoms of ASD and improves the quality of life of patients."
"Homoeopathy has remarkable advantages in the relief of allopathic medication side effects associated with autism treatments."

"I have never treated an autistic patient, but I have no doubt that the CM treatments could help the condition and any problems the patient may have."
"I have not treated autistic patients so I can't comment."
"I have not used TCM or acupuncture but taught a 12-year-old boy for six months taichi and qigong, it helps him tremendously and due to lockdown last year he could not come anymore. His father drove him all the way from Hermanus to Cape Town to learn taichi and qigong twice a week. I consider those two Chinese Internal Arts which is based on TCM theory as part of complementary medicine."
"I have used mostly body talk and sound therapy when working with mild cases of autism."
"I love helping patients on the spectrum as the results can be remarkable with the use of CM."
"I need more info on all aspects of this."
"I work in palliative care so I am not really focused on autism but would welcome more information on CM and autism."
"I would like to see research around the talk that its vaccine injury, therefore preventable."
"If the best outcome for the patient is kept in mind, the correct treatment will be provided, and the best care given."
"More studies should be done on the benefits of complementary medicine and autism."
"Most people go the conventional treatment route."
"Nutritional treatment"
"Parents know best. Once a child is fretting/distressed, an outsider cannot make it better."
"Patient should be treated on individual basis for best results."
"Supplemental melatonin, zinc, D3 and Omega 3 could possibly help. homoeopathic remedies like <i>Opium</i> may help."
"The causes of autism and especially the side effects of modern vaccination programmes should be progressively brought to the knowledge of parents worldwide. The Truth about Vaccination by Ty Bollinger should be in every complementary consulting room!!!!"
"The connection to vaccines and autism, heavy metals and detoxification need to be broadened and boldly discussed."
"The field of autism and complementary medicine was very briefly touched on in studies, we need more workshops and seminars to advance our knowledge as it is a common growing field."
"The public is not aware how much CM can help. More information should be shared on those platforms yes. It is often word of mouth referral."
There are many homoeopathic remedies that help with many different symptoms or aspects of autism, but diet and nutrition also tend to play a huge role. Therefore, the incorporation of all is vital. It is however also important for the parents or care givers to play their part in the treatment otherwise we won't find much success with treatment."
"There is much more information, research and discussion required on this topic."
"We need more info on the treatments of autism."

In Chapter 5, each objective regarding the above results will be analysed and discussed in detail.

Chapter 5: Discussion

5.1 Personal Information

5.1.1 Profession

Most of participants were homoeopaths (46.2%), aromatherapists made up 22%, naturopaths 17.4%, and acupuncturists 10.6%. Five participants were registered in more than one speciality: two participants were registered as a homoeopath and an acupuncturist, one as a naturopath and acupuncturist, one as a homoeopath and naturopath, and one as an aromatherapist and homoeopath.

The reason participants were mostly homoeopaths could be due to the fact that the population of registered homeopaths in South Africa was larger compared to the other associations. The approximate numbers of each profession in South Africa in 2020 were as follows:

- 564 homoeopaths – 71.21%
- 100 aromatherapists – 12.62%
- 78 naturopaths – 9.84%
- 50 acupuncturists – 6.31%

5.1.2 Age

The majority of participants fell in the age category of 36-45 years old (42.4%), 30.3% in the age category 25-35 years old, 10.6% in the age category 46-55 years old and 16.7% were 56 years or older. The reason for this could be since older CM professionals had more experience in the field of CM and autism as they had been in practice for a longer period, and this created more confidence in attempting the survey. Another reason could be since many young professionals have left South Africa in order to gain better opportunities, as it may be easier for young individuals to emigrate than older individuals

who are more settled. This is backed up by StatsNZ's data which shows the annual net immigration for the year 2020 was estimated to be 67 700 with South Africans making up 7 100 of this figure (BusinessTech 2020).

5.1.3 Years in Practice

The majority of participants were in practice between 11 and 15 years (28.8%). However, 22.7% were in practice between 6 and 10 years and 21.2% were in practice between 1 and 5 years. This shows that the results of this study were based mainly on participants with more experience in their profession, and correlates to the fact that the majority of participants were older in age.

5.1.4 Province

Majority of participants were practicing in Gauteng (43.2%), 25% were practicing in KwaZulu-Natal and 25% in Western Cape. There were no participants practicing in Free State, Limpopo, Mpumalanga, and Northern Cape. The reason for this could be since the population size of Gauteng is the largest (Kamer, 2021). The reason for not having participants from many smaller provinces could be since many CM professionals could have moved out to the cities as this brings better growth and progress. A large proportion of people residing in Gauteng are born in a different province and have relocated into the province (Oosthuizen and Naidoo 2004).

5.2 Knowledge of CM Treatment for Autism

Just over half of the participants answered in one question that their knowledge was sufficient to treat autism (58%), while in another question 99% of participants wanted more information. This highlights the great uncertainty in knowledge from participants since almost half said they had enough knowledge yet when the question had been rephrased 99% felt they wanted more information. Nearly all participants (99%) indicated that they would benefit from more information implying that there is a lack of information provided for them since the participants wanted more information (as interpreted by the

researcher based on participants. responses). The results here show great uncertainty around having enough knowledge and needing to gain more information. The uncertainty around CM in general and in this study specific to its usage in autism, is common to most professionals who are in the field of conventional medicine as highlighted in Chapter 2.

Knowledge is illustrated by the specific comments from participants below:

- “Complementary Medicine (CMA) can be used as an adjunct therapeutic protocol for patients with autism”
- “I need more info on all aspects of this.”
- “I work in palliative care so I am not really focused on autism but would welcome more information on CM and autism.”
- “More studies should be done on the benefits of complementary medicine and autism.”
- “The field of autism and complementary medicine was very briefly touched on in studies, we need more workshops and seminars to advance our knowledge as it are a common growing field.”
- “The public is not aware how much CM can help. More information should be shared on those platforms yes. It is often word of mouth referral.
- “There is much more information, research and discussion required on this topic.”
- “We need more info on the treatments of autism.”

5.3 Attitudes Towards CM Treatment for Autism

Almost 30% of participants considered themselves likely to recommend CM for autism and the majority (70%) were very likely. Therefore, the general attitude towards recommending CM for treating autism was quite good. This result could be since the participants were in fact CM professionals and could have felt the need to recommend CM for autism. Another reason could be that they have seen benefits in usage of CM for autism, therefore have very positive attitudes towards using CM for treating autism. Many parents seek out CM treatment for their autistic child/children as highlighted in Chapter 2. By CM professionals recommending the treatment it will help create satisfaction in

parents who are sceptical or need alternative methods to help their child/children manage their symptoms of autism.

Supporting comments from participants were as follows:

- “There are many homoeopathic remedies that help with many different symptoms or aspects of autism, but diet and nutrition also tend to play a huge role. Therefore, the incorporation of all is vital. It is however also important for the parents or care givers to play their part in the treatment otherwise we won't find much success with treatment.”
- “A colleague of mine who had an autistic son used CM effectively.”

5.4 Practices of CM Treatment for Autism

Since most participants were homoeopaths, homoeopathy was the most frequently selected treatment of recommendation. This was followed by aromatherapy then naturopathy. Most practitioners selected more than one option. Only two participants said they would not recommend any of the treatments for autism. As a practice, it is notable that most CM professionals have recommended the usage of CM for autism. The recommendation would not be so endorsed if the treatments had been unsuccessful. However, more research is required in this regard.

It should be noted that 37% of respondents had never treated autism in their practice, and just under half had seen less than 10 autistic patients. Also 33% had never spoken about other CM options for treating autism, possibly due to the lack of knowledge or not much literature is available on this topic. Supporting comments can be seen in the attitudes of CM professionals above.

5.5 Confidence Levels of Complementary Medicine Professionals in CM Treatment for Autism

There was a strong feeling among the participants that more research is needed around CM and autism (92%) while 86% said they understood to a certain degree how autism

can be treated with CM. This highlights the need for more research to be conducted in this field, yet it also shows that even though there is little research in the field, CM professionals are still confident enough in their understanding to use CM for autism.

The above can be seen clearly from the following participant comments:

- “Can treat if needed but feel I would be more confident if more information was available i.e., research.”
- “CM can be used as an adjunct therapeutic protocol for patients with autism.”

5.6 Perception of Complementary Medicine Professionals on CM Treatment for Autism

It was clear that most respondents thought CM should be used as a complementary treatment for autism (74%), that it can improve the symptoms (83%), and that there was no doubt as to its safety (90%). There was some uncertainty around whether to use CM with conventional medicine or after conventional medicine has been used and has shown no benefit. Some CM professionals have the perception that CM can improve symptoms of autism. This implies that they have seen or heard of the outcome of CM usage in autism patients, therefore they perceive it as such. These participants could also be assuming CM will improve symptoms of autism. Safety is not a concern expressed by CM professionals' responses in their perception treatment of autism.

A few supporting comments from participants:

- “Homoeopathy can safely be used to assist autism patients. Not sure on the safety of other CM methods, but a complementary approach could be useful, but it would be great to have more research done on different CM methods and their effects on autistic patients.”
- “I have never treated an autistic patient, but I have no doubt that the CM treatments could help the condition and any problems the patient may have.”

5.7 Association between Use and Satisfaction Rate in CM Treatment for Autism

Most respondents said they were satisfied (35%) or very satisfied (25%) with the outcomes, although a high proportion of participants (36%) had not seen any outcome either due to not seeing autistic patients or treated autistic patients but had no follow up.

There was a strong statistical association between recommendation of CM for autism, and satisfaction rate ($p < 0.001$). Those who recommended CM were more likely to have been satisfied (50%) or very satisfied (38%) with CM. Those who would not recommend CM were more likely to not have seen any outcome (89%). A few said maybe, and those were also more highly likely not to have seen any outcome. This is a clear indication of how the usage of CM for autism could be very beneficial as the professionals who had used CM for autism had reported being either satisfied or very satisfied with the outcome of treatment. Had the usage been unsuccessful it would not have been presented as such. However, the need for more research into this could clarify this aspect. Symptoms of autism are quite disruptive to everyday life as shown in Chapter 2; therefore, it is good to note that there was a high satisfaction with CM treatment of autistic patients.

A few direct comments from participants are indicated in the statements below:

- “CM is a wonderful treatment approach with regards to the treatment of autism, whether it is used as a primary option or in conjunction with conventional therapies or other allied therapies such as occupational therapy, psychology and speech therapy. From personal experience I have seen how, either through my own experience or through cases seen to by colleagues and friends, how children with autism have gone from being mute to attempting to communicate, become calmer and less fussy.”
- “CM assists with supporting systems that are over or under functioning in people who have autism.”
- “Have seen improvements but never full courses of treatments that may have resulted in full recovery.”

Chapter 6: Conclusions and Recommendations

6.1 Conclusion

The results of this study portrayed data on registered CM professionals, namely: aromatherapists who belong to Aromatherapy Association of South Africa, homoeopaths who belong to the Homoeopathic Association of South Africa, naturopaths who belong to South African Naturopathy Association, and acupuncturists who belong to South African Association of Chinese Medicine and Acupuncture. Their general knowledge, attitudes, and practices of CM treatment for autism were assessed.

The study had shown that this specific target group felt they had enough knowledge to use CM to treat autism. However, the participants still felt they needed more information about this aspect which shows a sense of uncertainty. These results are merely representing the participants of this survey and not necessarily the entire CM professional population of South Africa.

The general attitude of CM professionals who participated in this study showed a very positive perception as the majority of the professionals were very likely to recommend CM treatment for autism. This could be since they have seen some positive aspects of its usage in autism.

The practices of CM professionals who participated leaned more towards using homoeopathy as a treatment for autism, which could be since the majority of participants were homoeopaths, or it could just mean that progress and positive outcomes were seen with using homoeopathy for autism.

It is worthy of noting that many CM professionals who participated felt this field required more research yet showed great confidence in using CM treatment for autism regardless of the lack of research done on its usage for autism. This does not change the fact that

more research is needed in this field. The safety regarding its usage was not doubted by majority of participants.

In conclusion the researcher suggests more seminars or courses be introduced to CM professionals on using CM for autism to better equip them with knowledge to leave no room for uncertainty and allow maximum access to information in this regard. The need for more research in this field is also a great, as highlighted by participants.

6.2 Limitations

The main challenge experienced while conducted this research study was to ensure a good enough response rate. To create a better response rate for this research survey, the survey was conducted as an online web-based survey using GoogleDocs®. Research was previously done using a postage method to distribute surveys and this research study had indicated a low response rate (Maharajh 2005). In this research, the response rate initially aimed for was 141 responses to ensure 50% of the population had answered the survey, but only 132 participants responded. However, this did not affect the reliability and validity of the research as nine more responses would not make much of a difference (Statistician: Estherhuizen 2021, personal communication). A time frame was initially set allowing four weeks for the research survey to run. However, this time frame was increased due to the reasons listed below:

- CM professionals do not have much time in their schedule to fill out a survey even though it was online based. CM professionals probably assumed it would be time consuming.
- With the research study data collection being conducted around the second wave of COVID-19 many CM professionals could have lost loved ones, become ill themselves, and will have had to deal with a variety of problems. Therefore, answering a survey would have been the last thing on their 'to do' list.
- The research survey data collection was conducted at the end of the year and beginning of a new year, therefore at this time most people become busy. The survey could have been bypassed.

The response rate of 46.8% (132 responses) took 14 weeks to achieve. This was an indication that the online method of distribution was effective yet very time consuming.

The researcher was re-directed to relevant associations who had registered members of the AHPCSA to send out the survey therefore the sample size had to be reduced to members of these associations. This created a smaller study size.

6.3 Recommendations

- There is a strong need for more education to be provided to CM professionals regarding using CM for the treatment of autism to alleviate symptoms.
- There is a need to provide more information to CM professionals regarding recent studies and updates in the field of CM usage for autism, and general findings related to the field of autism, to keep the CM professionals up to date.
- The researcher recommends that the best way to educate CM professionals in this field is for their respective associations to offer short talks or lectures which would carry CPD points therefore encouraging the professionals to attend and gain much needed knowledge and information.
- The researcher recommends that more research in the usage of CM for treatment of autism in South Africa be conducted.
- The study was relatively small with a very narrow target group which highlights the need for repetition of this study on a larger scale to include all registered CM professionals in South Africa. This would provide a better representation of data.

- A study could be conducted using this study to compare CM professionals' perception and practices of treating autism with conventional medicine professionals' perception and practices of treating autism.
- Due to the distribution method being done through associations of the respective CM professionals, the target group was small as only members of those associations could participate. A similar study could be conducted with obtaining distribution of surveys through AHPCSA to target all CM professionals in South Africa, which would provide a larger sample.
- A study to assess different CM treatments used on autism patients and compare to the actual outcome by interviewing autism patients themselves or their guardians.

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8.1 Survey Ad



ATT: AROMA THERAPISTS, HOMOEOPATHS, NATUROPATHS & ACUPUNCTURISTS

Dear Registered Complementary Medicine Professional

A research study is being conducted by a Master student of Health Sciences: Homoeopathy from the Durban University of Technology for the completion of her Thesis through an online survey via GoogleDocs.

Title of the research study: "The Knowledge, Attitude and Practices of Registered Complementary Medicine Professionals on the use of Complementary Medicine (CM) modalities for the treatment of autism."

The online survey will require **ONLY 5-10 MINUTES OF YOUR TIME** and would be greatly appreciated. All participation is completely voluntary and remains anonymous.

Inclusion Criteria:

- Registered Aroma therapist, Homoeopath, Naturopath or Acupuncturist.
- Practicing in South Africa.
- Use English as a preferred language.

If you wish to participate in this research study, kindly read the information letter attached and click on the link below to answer the survey:

Survey Link: <https://forms.gle/2PcedkvjvYHC75eTA>

(PLEASE COMPLETE BEFORE THE 26th February 2021)

Should you require further information kindly contact the researcher directly.

Your help will be greatly appreciated.

Researcher: Tasfiah Rasool

Contact no. 066 213 7055

Email address: tasrsl@gmail.com

Ethics Clearance no. IREC 095/20

8.2 Pilot Study Information Letter

Appendix B



LETTER OF INFORMATION (Pilot study)

Title of the Research Study : The Knowledge, Attitudes and Practices of Registered Complementary Medicine Professionals on the use of Complementary Medicine (CM) modalities for the treatment of autism.

Principal Investigator/s/researcher: Tasfiah Rasool, BHSC in Homoeopathy.

Co-Investigator/s/supervisor/s: Dr I.M.S Couchman, MTech in Homoeopathy & Mrs. A.C.J Young, MED (Counseling & Psych)- Registered Psychologist.

Brief Introduction and Purpose of the Study: Good Day. I am a 5th year student at DUT doing my Masters of Health Science in Homoeopathy. I would like to invite you to participate in my research study as 1 of the 4 participants in a pilot study. Research is a systematic search or enquiry for a more generalized way of obtaining new knowledge in specific fields of interest. A pilot study is done to assess the quality and accuracy of the survey questions in helping to obtain the anticipated outcome. As a participant you can feel free to ask me as many questions as you like regarding this study as it is important that you understand what this research study is about. You may also feel free to discuss this study with family and friends and shouldn't feel obligated to commit to participate in the study unless you are entirely happy to participate within your own free will. Complementary Medicine (CM) is a term used for therapeutic methods used to treat conditions from a holistic and non invasive way such as Acupuncture, Homoeopathy, Chiropractic etc. Throughout the world we see a rise in the amount of autistic cases as well as an increase in the use of Complementary Medicine for different conditions. The aim of the study is to determine the knowledge, attitudes and practices of registered South African Complementary Medicine Professionals on the use of CM treatments for autism in order to gain a better insight into how Complementary Professionals feel about the use of CM treatments for autism. This will help to understand if more education in such a field is needed for practitioners who fall under Complementary Medicine. This has guided me to conducting this research survey among Registered Complementary Medicine Professionals in South Africa.

Outline of the Procedures: The aim of the study is to determine the knowledge, attitudes and practices of registered South African Complementary Medicine professionals on the use of CM treatments for autism in order to gain a better insight into how Complementary Professionals feel, confidence levels and knowledge about the use of CM treatments for autism. Should you wish to participate in my pilot study you are required to read this letter of information and then proceed to the hyperlink in the email. You are required to fill out the survey to the best of your ability after reading through the first page of informed consent before the actual questions on the survey. The survey has 3 pages with a total of 16 questions which will take approximately 5-10 minutes of your time to complete. Informed consent to participate in the pilot study will be given by you clicking on the first question of the survey. As a pilot study participant your responses will not be in the final results of the study, your responses are merely used to help determine whether the survey questions are applicable to the intended end result. If any of the questions are not fully understandable or if you have any comments about anything regarding the questions in the survey, kindly send me an email stating any adjustments that need to be made. Due to

6 August 2020

communication regarding questions in the study, your responses will be anonymous but I will need to discuss any problems with you therefore I will need to know who you are.

Risks or Discomforts to the Participant: There will be no risks or discomfort to any participants during the study.

Reasons you may be withdraw from the Study: Incomplete questionnaire or if you decide you do not want to participate anymore. You may simply exit the survey without clicking complete and your responses will automatically be deleted and therefore not considered.

Benefits: The benefit for you should you wish to participate will be indirect as you will be an assistance to the researcher in gaining further information about the content of the research survey and whether the desired result will be obtainable therefore more can be done to provide appropriate treatment for autistic children in the long term.

Remuneration: There will be no remuneration for taking part in the study.

Costs of the Study: You will not incur any costs for taking part in the study.

Confidentiality: The questionnaires will not contain any names or personal identification details. The online survey on Google Docs will not require any personal information from you therefore no way to jeopardise your anonymity. The Google Docs site does not link any information about your email address to the survey which was completed therefore no links can be made to your identity from the completed surveys.

Results: The final research thesis will be available and sent to you once completed.

Research-related Injury: There will be no research related injuries.

Storage of all electronic and hard copies including tape recordings Materials and information from the study will be locked in the research room for 5 years and then shredded. Records will be stored on a password protected computer and deletion will be done after 5 years. The researcher, supervisors, statistician and editor will be the only people with access to the information in the study for this period.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher Mrs Tasfiah Rasool (066 213 7055), my supervisor Dr I M S Couchman (082 925 6796) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or researchdirector@dut.ac.za.

8.3 Main Study Information Letter



LETTER OF INFORMATION

Title of the Research Study : The Knowledge, Attitudes and Practices of Registered Complementary Medicine Professionals on the use of Complementary Medicine (CM) modalities for the treatment of autism.

Principal Investigator/s/researcher: Tasfiah Rasool, BHSC in Homoeopathy.

Co-Investigator/s/supervisor/s: Dr I.M.S Couchman, MTech in Homoeopathy & Mrs. A.C.J Young, MED (Counseling & Psych)- Registered Psychologist.

Brief Introduction and Purpose of the Study: Good Day. I am a 5th year student at DUT doing my Masters of Health Science in Homoeopathy. I would like to invite you to participate in my research study. Research is a systematic search or enquiry for a more generalized way of obtaining new knowledge in specific fields of interest. As a participant you can feel free to ask me as many questions as you like regarding this study as it is important that you understand what this research study is about. You may also feel free to discuss this study with family and friends and shouldn't feel obligated to commit to participate in the study unless you are entirely happy to participate within your own free will. Complementary Medicine (CM) is a term used for therapeutic methods used to treat conditions from a holistic and non-invasive way such as Acupuncture, Homoeopathy, Chiropractic etc. Throughout the world we see a rise in the amount of autistic cases as well as an increase in the use of Complementary Medicine for different conditions. The aim of the study is to determine the knowledge, attitudes and practices of registered South African Complementary Medicine Professionals on the use of CM treatments for autism in order to gain a better insight into how Complementary Professionals feel about the use of CM treatments for autism. This will help to understand if more education in such a field is needed for practitioners who fall under Complementary Medicine. This has guided me to conducting this research survey among Registered Complementary Medicine Professionals in South Africa.

Outline of the Procedures: The aim of the study is to determine the knowledge, attitudes and practices of registered South African Complementary Medicine professionals on the use of CM treatments for autism in order to gain a better insight into how Complementary Professionals feel, confidence levels and knowledge about the use of CM treatments for autism. Should you wish to participate you are required to read this letter of information and then proceed to the hyperlink in the email or ad. You are required to fill out the survey to the best of your ability after reading through the first page of informed consent before the actual questions on the survey. The survey has 3 pages with a total of 17 questions which will take approximately 5-10 minutes of your time to complete. **Informed consent will be given by you clicking on the first question of the survey.**

Risks or Discomforts to the Participant: There will be no risks or discomfort to any participants during the study as complete confidentiality will be maintained.

Reasons you may be withdraw from the Study: Incomplete questionnaire or if you decide you do not want to participate anymore. You may simply exit the survey without clicking complete and your responses will automatically be deleted and therefore not considered.

6 August 2020

Benefits: The benefit for you should you wish to participate will be indirect as you will be an assistance to the researcher in gaining further information about your knowledge, perception and confidence in the use of Complementary Medicine treatments for autism therefore determining if there is a need to provide more education in this field.

Remuneration: There will be no remuneration for taking part in the study.

Costs of the Study: You will not incur any costs for taking part in the study.

Confidentiality: The questionnaire does not contain any names or personal identification details. The online survey on Google Docs will not require any personal information from you therefore no way to jeopardise your anonymity. The Google Docs site does not link any information about your email address to the survey which was completed therefore no links can be made to your identity from the completed surveys.

Results: The final research thesis will be available on the DUT repository and upon request from AHPCSA and the HSA.

Research-related Injury: There will be no research related injuries.

Storage of all electronic and hard copies including tape recordings Materials and information from the study will be locked in the research room for 5 years and then shredded. Records will be stored on a password protected computer and deletion will be done after 5 years. The researcher, supervisors, statistician and editor will be the only people with access to the information in the study for this period.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher Mrs Tasfiah Rasool (066 213 7055), my supervisor Dr I M S Couchman (082 925 6796) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Lingano on 031 373 2577 or researchdirector@dut.ac.za.

Ethics Clearance no. IREC 095/20

8.4 Gatekeeper Permission



Appendix A2
Gatekeeper permission CONSENT

Name of Organisation: ALLIED HEALTH PROFESSIONALS
COUNCIL OF SOUTH AFRICA

Name of contact at Organisation: DR LOUIS MULLINDER

I hereby confirm that I have approved that Mrs Tasfiah Rasool student in Department of Homoeopathy at Durban University of Technology may contact Registered Complementary Medicine Professionals in South Africa and conduct an online survey among the Registered Complementary Medicine Professionals who belong to the above mentioned organisation.

Signature:

PRINCIPAL/Head of Organisation AHPISA REGISTRAR

Date: 29 OCTOBER 2020

Signed at: PRETORIA

8.5 Online Survey

A Survey on The Knowledge, Attitudes and Practices of Registered Complementary Medicine Professionals Towards the Use of Complementary Medicine for Treating Autism.

Dear Participant

THANK YOU FOR TAKING TIME OUT TO HELP WITH THIS RESEARCH STUDY, PLEASE READ BELOW BEFORE PROCEEDING

This survey contains 3 pages and 17 questions.

All information provided by you will be collated and summarized into key thematic areas by the researcher and the data analyst. The findings will be used to create a better platform of information for Complementary Health Care professionals and the autistic community when it comes to treatment options for autism.

No personal information will be recorded and your responses remain COMPLETELY ANONYMOUS. Once you have clicked on the next page and answered the first question, you have given consent for your responses to be used in the research study. If you agree to participate, kindly complete ALL questions and answer freely.

Please contact the researcher if you have any queries about this research study Tasfiah Rasool (tasrsl@gmail.com/ 0662137055)

INFORMED CONSENT

I hereby confirm that I have been informed by the researcher via the information letter about the nature, conduct, benefits and risks of this study.

I have also received, read and understood the information letter regarding the study attached in the email.

I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed in the study report.

In view of the requirement of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.

I may, at any stage, without prejudice, withdraw my consent and participation in the study.

I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

I, therefore, provide my full consent to participate in this research study by answering this online survey.

I PROVIDE MY CONSENT BY CLICKING NEXT.

* Required

Demographic data

1. Please indicate your profession from the list below (More than one is allowed) *

Check all that apply.

- ☐ Aroma Therapist
- ☐ Homoeopath
- ☐ Naturopath
- ☐ Acupuncturist

2. Please indicate your category of age *

Check all that apply.

- ☐ 25-35 years old
- ☐ 36-45 years old
- ☐ 46-55 years old
- ☐ 56 years or older

3. How many years are you practising as a Complementary Medicine Professional? *

Check all that apply.

- ☐ 1-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16-20 years
- ☐ 21-25 years
- ☐ 26-30 years
- ☐ 31+ years

4. Which province are you practising in currently? *

Check all that apply.

- ☐ Western Cape
- ☐ Eastern Cape
- ☐ Northern Cape
- ☐ North West
- ☐ Free State
- ☐ KwaZulu-Natal
- ☐ Gauteng
- ☐ Limpopo
- ☐ Mpumalanga

Knowledge, Attitudes and Practices

5. In your years of practice, approximately how many autism patients have you seen to date? *

Check all that apply.

- ☐ None
- ☐ 1-10
- ☐ 11-20
- ☐ 21-30
- ☐ 31-40
- ☐ More than 41

6. Have you ever recommended any Complementary Medicine treatments for an autistic patient/s before? *

Check all that apply.

- ☐ Yes
☐ No
☐ Maybe

7. How likely is it that you would recommend Complementary Medicine for treating autism? *

Check all that apply.

- ☐ Very likely
☐ Likely
☐ Unlikely
☐ Very unlikely

8. Which of the following would you recommend to autistic patient/s for treatment of their symptoms? (You may select more than one) *

Check all that apply.

- ☐ Aromatherapy
☐ Homoeopathy
☐ Naturopathy
☐ Ayurveda
☐ Chiropractic
☐ Phytotherapy
☐ Massage therapy
☐ Reflexology
☐ Unani-Tibb
☐ Chinese Medicine & Acupuncture
☐ I wouldn't recommend any of the above

Other: ☐ _____

9. Can you confidently say you understand how autism can be treated with Complementary Medicine? *

Check all that apply.

- ☐ Yes
☐ No
☐ Maybe

10. As a Registered Complementary Medicine Professional, do you feel you have enough knowledge to treat autism patients? *

Check all that apply.

- ☐ Yes
☐ No

11. In your opinion, do you see Complementary Medicine treatments for autism as? *

Check all that apply.

- ☐ First Choice treatment for autism
☐ Supportive treatment for autism
☐ Last choice treatment for autism
☐ Of no value in autism

12. Would you be more confident in the use of Complementary Medicine for autism if more research was done around it? *

Check all that apply.

- ☐ Yes this field needs a lot more research
☐ No there is enough research to back it
☐ It wouldnt make a difference
☐ I prefer not to say

13. Indicate your belief on Complementary Medicine (CM) use in Autism. *

Check all that apply.

	True	False	Unsure
CM can improve symptoms of autism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CM should be used only after conventional methods have shown no or little benefit for autism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using CM with conventional medicine for autism would produce the best outcome	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CM is completely safe to use for autism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. How often do you talk about other Complementary Medicine options for treating symptoms of autism? *

Check all that apply.

- ☐ Always
- ☐ Sometimes
- ☐ Never

15. Overall, how satisfied are you with the outcome of autism patients who have used Complementary Medicine treatments? *

Check all that apply.

- ☐ Very satisfied
- ☐ Satisfied
- ☐ Unsatisfied
- ☐ Very unsatisfied
- ☐ I haven't seen any outcome

16. Do you feel more information about this increasingly growing field needs to be made available to you and other Complementary Medicine Professionals? *

Check all that apply.

☐ Yes

☐ No

17. Share a comment, belief or practice regarding the use of Complementary Medicine for Autism.

This content is neither created nor endorsed by Google.

Google Forms

8.6 Editor Proof Letter

DR RICHARD STEELE

BA, HDE, MTech(Hom)

HOMEOPATH

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EDITING CERTIFICATE

Re: Tasfiyah Rasool

For editing DUT Master's dissertation: **The Knowledge, Attitude and Practices of Registered Complementary Medicine Professionals on the use of Complementary Medicine (CM) Modalities for the Treatment of Autism**

I confirm that I have edited this dissertation and the references for clarity, language and layout. I returned the document to the author with track changes so correct implementation of the changes and clarifications requested in the text and references is the responsibility of the author. I am a freelance editor specialising in proofreading and editing academic documents. My original tertiary degree which I obtained at the University of Cape Town was a B.A. with English as a major and I went on to complete an H.D.E. (P.G.) Sec. with English as my teaching subject. I obtained a distinction for my M.Tech. dissertation in the Department of Homoeopathy at Technikon Natal in 1999 (now the Durban University of Technology). I was a part-time lecturer in the Department of Homoeopathy at the Durban University of Technology for 13 years.

Dr Richard Steele

10 July 2021

per email