

Aromatherapy on Learning of an Autism Children: A Review of the Literature

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Abstract

The purpose of this study of literature is to address a few key issues: the benefits of aromatherapy oils, an understanding of the literature related to its impact on ASD children, and its impact on their learning. Despite the fact that studies on aromatherapy oils have demonstrated an increase in popularity, the impact on learning, particularly in ASD children, has not been investigated. In addition, the use of aromatherapy oils in teaching remains methodologically useless but a few articles have been published in the field of education that incorporate published research of ASD children's aromatherapy oils. Several online databases, including ERIC, ProQuest Education Journals, and Scopus, were searched using the phrases "aromatherapy oils" or "aromatherapy oils in learning," as well as "Autism spectrum disorder (ASD) children." The content analysis method was used to examine the articles. According to the findings, ordinary students or those with other problems place a greater importance on memory, attention span, and anxiety than people with ASD. Since only research relevant to ASD is examined, the future study should focus in particular on the application of aromatherapy oils to enhance the learning skills and strengths of the children.

Keywords: Aromatherapy, autism spectrum disorder, learning, therapeutic intervention

Introduction

A number of symptoms, including communication, social links, sensory integration, stereotypes and excessively focussed interests throughout the spectrum, characterise Autism. This unique array of talents and limitations helps to establish a different profile. As autism has a big influence on young children's social, emotional and academic development, parents and experts always endeavour to find successful treatment techniques (Cohen & Volkmar, 1997). At discussions, Cronbach (1957) described how scientists such as Thorndike and Woodworth in the early 1900s promoted a movement in academic thinking that led to the impact of environmental modifications on learning to improve performance (Hall, 2003). Teachers have long been using this environmental concern to help them build good schools (Anderson et al., 1996). If kids with ongoing difficulties are to develop settings, teachers must assess carefully the context, atmosphere and experiences that enhance the learning of such pupils.

Back in 1997, clinicians highlighted that their environments were not well known how children with autism were evaluated and called for more studies to meet the multimodal needs of autism-age children at school. Woler and Gast (2000) have suggested the healthcare community to develop particular training methods to improve their understanding of the effects of different environment variables on autistic learning and achievement. The needs of children with autism are sometimes so complicated and individual in this communal environment that they are hard to identify and meet.

Aromatherapy and essential oils are used to increase sensitivity and communication by people with learning problems. Aromatherapy is suitable in a variety of circumstances for people with learning disabilities. Essential oils are plant extracts that promote mental serenity and the emotional and physical equilibrium. Plant oil is normally distilled, and its qualities remain unchanged in essential oil form. The oils come from plant parts such as lavender, stem, leaf (eucalyptus, geranium) and bark (cinnamon). Several essential oils have distinct therapeutic properties for the mind and body. Important oils from rose blossoms or herbs, such as tea tree, are

commonly thought to have antidepressant, bacteriostatic or sedative characteristics (Tisserand,1980). Essential oils, including spraying (with oil, cream, or lotion) are safe to consume and can be used in a variety of ways.

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a category that can generate substantial problems in developmental disorders, social, communication and behavioural. This can lead to social problems, problems with people, items and events, and repeated physical behaviour. The "ASD spectrum" emphasises the diversity of inadequacies of people with ASD, each with its unique set of characteristics and requirements. Students with autism experience a variety of issues in the classroom. For instance, reading skills are required for learning, but in a conventional school atmosphere are not required. Interventions that led to greater results in the development of reading abilities have helped to pay attention to the appropriate material. This leads to the conclusion that ASD youngsters must be supported by interventions. An early and effective intervention is essential to enable an autistic children become autonomous and integrated in the community. The sooner a young person gets a well-balanced special diet and treatment with natural treatments, the more likely he is to succeed. Autism is a developmental neurological illness with a spectrum that shows differences in child growth as individuals become adults (Richler et al., 2007).

Autism is becoming more widespread in Malaysia, however, there is always a poor awareness and comprehension of this spectrum disease. These youngsters are still poorly educated in Malaysia due to a lack of information of autism among parents and the society (Azizan, 2008). Autism affects one out of every 100 Malaysian children aged 18 to 26 months, or one in every 625. Malaysia has a minimum of 9 000 autistic children, according to NASOM. The rate of ASD is growing year after year, affecting one in every 600 infants. The Malaysian Psychiatric Association has highlighted the necessity of customised autism treatment that better fulfils local children's needs (NASOM, 2014). In the intervention programme, the missing links found in an autistic child are targeted and require persistence, repeated execution and consistency before the child improves. As a result, many parents are unaware of this and monitor their children instead using alternative medicines or strategies that are not in keeping with a genuine growth of their child. The understanding of cognitive, physical and verbal growth of their children will promote spontaneous collaboration between all careers, especially parents, who will understand the genuine reasons why their children continue using therapies that allow them to overcome their autism. The objective of this study is to illustrate the effectiveness of aromatherapy oils for autistic children in educational environments, by examining the learning challenges faced by autistic children as well as the benefits of essential oil for autistic children.

Challenges Autistic Children Face in Learning

On the other hand, the language and IQ of children with Asperger's Syndrome or Autism Spectrum Disorder are appropriate for their age, but are without socialisation and adaptive ability. Social and academic weaknesses of children at a young age become apparent (Ghaziuddin, 2008). Consequently, learning strategies leading to effective pedagogical adjustments are needed for children with ASD. Hodge et al. (2009) were investigated in autistic children aged 6 to 13 years for brain injuries. The left lobules are responsible for the absence of communication, memory, academia and the cognitive fields associated with Stoodley and Schmahmann's research in 1999. When the researchers analyse "Studies of intellectual skills in autistic people with high functions" they find they are very brilliant, but their IQ levels are not stable and dependent completely on the conditions. Autistic youngsters may solve puzzles and execute arithmetic calculations despite their inability to memorise extended phrases or learn routine behaviours.

Autism children have a comparatively limited reminder of sophisticated visual, linguistic and spatial memories (Williams et al., 2006). Consequently, steps are required to enhance the learning that will provide benefits for children with ASD to their schooling. The autistic children with the learning difficulties may, according to Obrusnikova and Dillon (2011) have communication concerns, a limited focus, problems of concentration, anxiety, hostility, aggressiveness, carelessness, hyperactivity and impulsivity. A clearer understanding of the impact of autism on learning is an important first step to overcome these difficulties. There had been little work to provide support to teachers in their classes to accommodate ASD students (Bolourian et al., 2019). This work aims to study, in particular in children with ASD, how therapeutic intervention can improve learning.

The Benefits of Aromatherapy Oils

The terms "aroma" (fragrance) and "therapy" are derived from the same root word (treatment). Towards the end of the 20th century and in the 21st century this therapy was developed. The essential oil has achieved attractiveness in medicinal, cosmetic, herbal, aromatic and spiritual uses. The information we obtained through the senses of sight, hearing, touch, taste and smell is crucial in order to better comprehend our environment. Aromatherapy promotes sensation and fragrance, and it can not only provide physical and psychological well-being, but also provide new approaches for individuals of learning difficulties in particular.

People with learning disabilities may also have physical or sensory disabilities. Many patients with intellectual disabilities have also sensory impairment, with a simultaneous sensory impairment of 48 percent (Gill & Harris,

1991). This tension may be due to a lack of choice in their everyday life and new experiences and learning that people with learning difficulties do not communicate. The aromatherapy can help a person who is disturbed to relax and sleep, relieve impatience, frustration, tension and rage. Aromatherapy and massage are an integrated experience because they connect the senses of fragrance, touch, body, psychology and spirit of the body. In combination with these therapies the life of persons with learning difficulties can greatly be improved. This treatment includes massages, creams, lotions and scented massage oils that reflect a person's capacity to communicate and interact (Sanderson et al., 1991).

Aromatherapy is also employed in schools as part of the national science curriculum which comprises the response to sensory stimulus and the exploration of materials. They are supposed to be utilised to boost alertness, to encourage interactions, and to improve sleep, as anti-depressant, stress relief, sedative, and antibacterial (Sanderson & Ruddle, 1992; Tisserand, 1980; Harrison, 1996). For centuries, people have claimed that particular essential oils may raise fatigued minds and bodies and invigorate them. In Japan, investigations have shown that the machine operators' exposure to the lavender fragrance has decreased error by 20 percent, while the energising aroma of lemon is dropped by 54 percent. Essential oils can be utilised as antidepressants, regenerators, stimulants, sedatives, media and sleep incentives. According to the Warwick University study, specific odours could be linked to various emotions (Van Toller & Dodd, 1988). Several studies have demonstrated that aromatherapy decreases anxiety, discomfort and high blood pressure. Berman (2011) agrees on the positive mood, physiological and behaviour effect of aromatherapy with Horowitz (2011) where more research have found similar results (Herz,2009).

How Does Aromatherapy Oil Work?

In electronic equipment such as diffused lighting, ultrasound sprays and essential oil burners, aromatherapy has made its way. Containers are used in a variety of settings to obtain aroma for physical and mental cleaning. For thousands of years, essential oils have been used to treat and heal the body, mind and spirit. Several procedures are utilised, including inhalation, massage or treatment of skin surfaces, albeit seldom used internally.

The treatment of the mental and physical equilibrium through the use of essential oils is effective with aromatherapy. The oil from various parts of the plant can be extracted and has been shown to operate in many ways.

Table 1 The various kinds of use of aromatherapy oils

Classification	Description
Cosmetic	For cosmetic items such as skin, body, face, and hair this treatment uses various essential oils. These products are used to clean, humidify, drain and tonic for their diverse benefits.
Medical	Rene-Maurice Gattefosse, the pioneer of Modern Aromatherapy, employed essential oils during surgery to massage patients, as clinical studies reveal.
Psycho	Method that allows the user to reach emotional and mood state using aromatherapy. In this therapy, the oils are inhaled directly into a patient's room through infusion.
Massage	This includes the absorption or rubbing of essential oil molecules into the skin.
Olfactory	It consists of inhaling basic oil, resulting in a boost in emotional well-being, relaxation, relationship or body rejuvenation.

Aromatherapy's Effectiveness in Education

When parents use essential oils in their bathroom, back, massage or evening diffuser, their children look less restless and fall asleep for longer durations. Parents and children describe calm emotions when essential oils are sprayed or disseminated throughout the area (Cullen-Powell et al., 2005). A study was conducted on the therapeutical implications of TTM on hyperactivity, inattention and sleeping behaviour in the Thai Traditional Massage (TTM). But there are only indicators of worry that improve (Piravej et al., 2009). Massage treatment has showed that sleep disorders, classroom levels, and social interaction are improved and that stereotyped behaviour and aversions are reduced.

Various studies have revealed physiological aspects of odors, but cognitive functions are still poorly understood. According to research, olfactory stimuli have a significant effect on attention (Field et al., 2005). The influence of essential oils on alert or on long-term work was explored by Warm et al. (1990). There were three scene studies: fragrances in varying contexts, either Muguet's or Peppermint's essential oil (control). These findings led to the conclusion that petroleum management helped maintain attention and complete exercise.

Scents can help certain pupils get in the appropriate mindset for learning. They may also begin to associate certain fragrances with certain memories, which might aid in memory recall. Kristin Czar (2009) studied precise brain stimulation using essential oils to promote alertness in eleventh-grade girls. This provides compelling evidence that aromatherapy improves alertness in classroom participation.

Memory is the crucial element in the investigation. The heart of all knowledge and learning is memory. Smells has been proven to promote memory; Hudson and Distel (2002) revealed it is difficult to remember aromas that help memory by losing their olfaction. This can enhance memory by an olfactory stimulus. Olfactory exposure information is very significant and leads to long-term memory. Aromatherapy can help memory by harmonising smell messages, incorporates perfumes into the learning environment, or repeats lectures with smells.

A study of seventy-nine high school students aged between 13 and 17 examining the short-term visual and numerical reminder of essential oils. The participants were divided into three groups: the control group, the group of 'Lavenders' (which sprayed essential oil of lavender) and the group of 'Rosemary.' Compared to the regulation of essential oil from Rosemary and Lavender, image memory has increased significantly. Inhalation of essential rosemary oil improved numerical storage (Filipitsova et al., 2018). In a fifteen-minute experiment, 40 schoolchildren were asked to complete standardised memory tests. According to the findings, students who played memory games in a rosemary-scented room outscored those who played in an unscented area. Essential oils include active chemical molecules that are taken into the bloodstream and subsequently to the brain, where they can affect memory-related systems (Moss et al., 2017).

Olfactory stimuli that have been shown to be influential (Hofmann, 1987) may aid in the facilitation of learning. The right perfume that supports the learning of kids can make classrooms more calm than currently, given their genetic, personal and cultural features. Aroma (Donald et al., 2005), as known to help memory and to affect the sense of the surroundings throughout the learning process, should be applied at this time.

The cognitive and affective education of both normal and educated individuals with disabilities is influenced by essential oils. Information on olfactory stimuli's functions, such as emotion control and long-term memory organisation (Dade et al., 2001). Complicated thoughts can be simplified by matching them with scents.

In addition, the concepts to be learnt might be paired with pleasant smells, improving the effectiveness of emotional teaching in the classroom. Olfactory stimuli may be useful when you are researching how olfactory stimuli help the memory and mental imaging to code learning process messages (Herz, 1997; Bodnar et al., 2004). Although the foundation for learning is not obvious today, there is some literature on the effect of olfactory stimuli on learning.

Olfactory stimuli have been proven to influence learning. Taking into account students' genetic, personal, and cultural traits, the appropriate fragrance will aid to increase studying and may allow lessons to be more enjoyable for students. Aromas known to improve memory and impact perception of the surroundings should be employed during the learning process. Essential oils have a major impact on the cognitive and emotional education of both regular and special education kids. When complicated concepts are combined with aromas, they become easier to understand (Brosh & Barkai, 2004). In addition, attractive scents assist pupils get things faster, increasing the effectiveness of the classroom emotional education. Olfactory stimuli can be beneficial for learning because some olfactory sentiments are especially simulatory and can be used in scenarios as a life-saving association factor (Herz, 1997). The purpose of education is to prepare pupils for life, and all stages of life are significant. Based on the findings, it is plausible to conclude that aromatherapy oils have a good effect on learning, particularly memory and attention. Furthermore, the bulk of the research used essential oils such as lavender, rosemary, and peppermint to determine the impacts on learning.

The Effects of Aromatherapy Oils on Autistic Children's Learning

Essential oils can aid an autistic childrens in two ways: they can make contact and they can release emotion. Worwood (2016) recommends lavender, geranium, and clary sage to relieve tension and anxiety. Massage therapy has been found in tests to soothe and relax autistic youngsters sufficiently to allow them to concentrate in class. While, the evidence is encouraging, the number of studies is still limited, necessitating further research. Dr. Josh Axe (2018) suggests employing essential oils in autism therapy to improve brainwave activity balance and neurological development.

In a two-year case study, Dr. Terry Friedmann discovered significant advantages when therapeutic essential oils were inhaled three times a day for 30 days using a diffuser by children who had previously been diagnosed with ASD (Friedmann, 2001).

The most important oils used in the study were lavender, vetiver, and cedarwood. The children's brain waves were restored to normal patterns after inhaling essential oils, and their performance and behavioural patterns improved. Essential oil aromas have a significant ability to trigger the limbic region of the brain.

Holden-Peters (1993) found that aroma therapy with children with disabilities encouraged young people to come out of their shells and facilitated their studies with children with disabilities with experiences and interactions with other people. The children's sleep patterns also improved. They even advise using soothing oils like lavender and sandalwood on a regular basis to avoid causing distress or deprivation. Aromatherapy for six nonverbal autistic primary-school children, including hand and foot massage, has been used by Ellwood (2001). She noticed that the lavender oil made the children appear more comfortable. She also discovered that gentle massage reduced these children's tactile defences while increasing their trust in people. As a result, improved communication skills were created. Sanderson, Harrison, and Price (1991) all present similar strategies for

increasing participation with aromatherapy massages. Solomons (2005) investigated if aromatherapy massage may improve shared attention behaviour in a group of four autistic spectrum disorder children with severe learning problems. Aromatherapy massage was introduced into the children's regular routine, and their reactions were documented. The findings show that children's behaviour during aromatherapy massages has improved, and other aspects of their behaviour have changed as a result of the process. Other benefits found in his research included improving the use of eye contact to attract attention, trading activities and resources with adults, increasing tolerance to others' physical closeness, and initiating (requesting) massage through nonverbal means. Kumari et al. (2006) studied autistic children aged 7 to 15. The purpose of the study was to determine how diffused lavender oil affected the development of communication abilities in children with autism. Over the course of four months, this study involved three sessions per week for 15-20 minutes. The researcher saw a significant improvement in the case of two girls, whereas the other children did not improve at all, and one child did not improve at all.

Christie (2016) has examined the impact of essential oils on an autistic child's scholastic and social skills. Researchers focused their attention on 12 fundamental essential oils, with a special focus on intellectual and social capabilities for the development of the child over the six to eight months.

The results were assessed and examined in order to determine the optimum reactions. Increased positive signs were detected after the intervention, like better openness towards more communication and a higher desire to deal with difficult situations.

Conclusion

It was surprising that the literature evaluation only included a few papers on therapeutic approaches. Research on therapeutic interventions for children suffering from ASD is equally scarce. The limited available study mainly involves learning healthy persons, not children with ASD. According to our research evaluation, the treatment interventions in educational environments should be performed by ASD youngsters. The most often utilised non-pharmacologic therapies for ASD children have been the use of conduct analyses, speech, language and communication interventions, occupational therapy and cognitive behavioural therapy.

In this area, further research and research are needed to discover the complete impacts and fields in which aromatherapy can be applied as an educational intervention, according to the results. The whole aromatherapy subject is challenging to explore because different variables must be taken into account. Whilst visible impacts of essential oils on education in healthy persons are becoming increasingly clear, further research is needed to assess their influence on autistic individuals. This enables teachers to establish both friendly and enriching classrooms.

There is considerable opportunity for further cooperation between researchers to examine the application of essential oil in greater depth and exceed the low dose paradigm. This article highlights the therapeutic effects of aromatherapy on people with learning difficulties. This research will help instructors construct learning environments that encourage learning. The effects of aromatherapy must be investigated due to the absence of good studies on the effects of therapeutic intervention on children with autism.

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