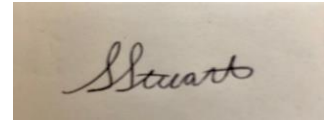
Treatment Intervention Advisory Committee Review and Determination



Date: February 22, 2019

To: Wisconsin Department of Health Services

From: Wisconsin Department of Health Services Treatment Intervention Advisory Committee: Shannon Stuart, Ph.D. (chairperson)

RE: Determination of Aromatherapy as a proven and effective treatment for children and adults

☐ This is an initial review

☒ This is a re-review. Previously reviewed (rated) on January 30, 2015 (4) and January 29, 2016 (4).

☒ No new research located; determination from January, 2016 stands (details below)

Section One: Overview and Determination

Please find below a statement of our determination as to whether or not the committee views Aromatherapy as a proven and effective treatment. In subsequent sections you will find documentation of our review process including a description of the proposed treatment, a synopsis of review findings, the treatment review evidence checklist, and a listing of the literature considered. In reviewing treatments presented to us by the Department of Health Services, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a treatment is with regards to quality research. The committee does not make decisions regarding funding.

Description of proposed treatment

Aromatherapy is defined on the National Association for Holistic Aromatherapy website as "… the art and science of utilizing naturally extracted aromatic essences from plants to balance, harmonize and promote the health of body, mind and spirit. It seeks to unify physiological, psychological and spiritual processes to enhance an individual's innate healing process." Aromatherapy uses essential oils from plants such as lavender plus other aromatic compounds to alter mood, anxiety, stress, etc., and is reported to improve conditions ranging from pain to inattention to anxiety and stress.

Aromatherapy belongs to the group of complementary or alternative medicine that is often given concurrent with traditional medicine, but can be given alone. Generally speaking, the evidence for aromatherapy is not convincing and weakens as experimental controls are improved. Description of modaility based on developer's description

Synopsis of current review (February 2019)

Committee members completing current review of research base: Brooke Winchell & Julie Harris

Please refer to the reference list (Section Four) which details the reviewed research.

No new research was found in the time period since the last review.

Committee's Determination: After reviewing the research and applying the criteria from the Treatment Review Evidence Checklist, it is the decision of the committee that Aromatherapy retain an efficacy rating of Level 4, Insufficient Evidence (Experimental Treatment).

Review history
(January 2016 - Roger Bass & Lana Collet-Klingenberg
The committee's conclusions regarding Aromatherapy include:

1. Weak research designs that confounds variables and insensitive data collection/interpretation practices to yield questionable data that is used to support arguments for its efficacy.
2. Lack of adequate control groups (e.g., a placebo) are common.
3. No studies were found that compared aromatherapy with mainstream medical practices alone or in combination with aromatherapy - a critical concern for a therapy claiming to be "complementary" medicine.
4. Inconsistent replication across researchers.
5. Data collection procedures that are insensitive to the dependent variables.
6. In addition, data are emerging (e.g., Podsadzki, Alotaibi, & Ernst; 2012) that aromatherapy can have adverse side effects that, in rare cases, is fatal. That and the problems with identifying convincing data in any of numerous reviews, leads to the conclusion that aromatherapy has enjoyed unjustified wide-spread application.

In sum, it is the decision of the committee that (a) authorities are in substantive disagreement concerning aromatherapy's efficacy. Reviews consistently find research methodology concerns that question whole bodies of evidence. Aromatherapy has not been systematically studied with ASD, emerging evidence exists that it may be harmful, and comparative studies with proven procedures do not exist.

The committee recommends that Aromatherapy retain an efficacy rating of Level 4, Insufficient Evidence (Experimental Treatment)

(January 2015 - Jennifer Asmus and Amy Van Hecke)

The committee's conclusions regarding aromatherapy include a lack of evaluation with children with autism. The only studies mentioning aromatherapy for autism, found by this committee, included one report of parents using aromatherapy for their autistic children, with no evaluation of its effectiveness (Polimeni, Richdale, & Francis, 2005), and another review on non-traditional approaches to sleep problems, which concluded that the one aromatherapy study reviewed had no effect on sleep (McLay & France, 2014). One study was found examining odors as being processed/rated differently in individuals with autism (Hrdlicka et al., 2011) and another study examining odors as reinforcers/rewards for desired behaviors (Wilder et al., 2008). Further, in their review of complementary and alternative therapies for ASD, Levy and Hyman (2008) classify aromatherapy as a "Grade C: Case reports and Theories only."

No scientific, empirical studies to date that evaluated the effects of aromatherapy as an intervention for individuals with autism were found.

In sum, it is the decision of the committee that there exist no studies in which the primary treatment for autism was aromatherapy, and no authoritative bodies have recognized the treatment as having emerging evidence. However, there is no evidence that the treatment may be harmful, unless the essential oils are consumed or used in inappropriately large amounts. Therefore, aromatherapy is classified as Level 4 - Insufficient Evidence (Experimental Treatment).

Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

(a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and

(b) **Comprehensive treatment models** are “packages” or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does *not* constitute an evaluation of the comprehensive treatment model or “package.” The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment *as a package*. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18,* 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40,* 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37,* 8-38.

Section Three: TIAC Treatment Review Evidence Checklist

Name of Treatment: Aromatherapy

Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- ☐ There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - ☐ Minimum of two group studies or five single subject studies or a combination of the two.
  - ☐ Studies were conducted across at least two independent research groups.
  - ☐ Studies were published in peer reviewed journals.
- ☐ There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- ☐ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- ☐ There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - ☐ Minimum of one group study or two single subject studies or a combination of the two.
  - ☐ Studies were conducted by someone other than the creator/provider of the treatment.
  - ☐ Studies were published in peer reviewed journals.
- ☐ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: at this level, include ages of participants and disabilities identified in body of research

Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- ☐ There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - ☐ May be one group study or single subject study.
  - ☐ Study was conducted by someone other than the creator/provider of the treatment.
  - ☐ Study was published in peer reviewed journal.
- ☐ Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: At this level, include ages of participants and disabilities identified in body of research

Level 4 – Insufficient Evidence (Experimental Treatment)

- ☒ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- ☒ There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - ☐ Study was conducted by the creator/provider of the treatment.
  - ☐ Study was not published in a peer reviewed journal.
- ☒ Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

Notes: (a) Data suggest that harmful effects have been documented, and (b) No systematically completed series of studies indicates that aroma therapy is efficacious in comparison research, where proper control groups are in place, and where data collection procedures are sensitive to behaviors that are clearly identified as dependent variables.

Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful

- ☐ Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- ☐ There are no published studies supporting the proposed treatment package.

- ☐ **There exists evidence that the treatment package is potentially harmful.**
  - ☐ Authoritative bodies have expressed concern regarding safety/outcomes.
  - ☐ Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

Notes: At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

References Supporting Identification of Evidence Levels:

Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66(1)* 7-18.

Chorpita, B.F. (2003). The frontier of evidence---based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.

Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure, 54(4),* 275-282.

Section Four: Literature Review

<u>Literature reviewed for current determination:</u>

No new research

<u>Literature reviewed for previous determinations:</u>

Siobha´n Howard & Brian M. Hughes (2008). Expectancies, not aroma, explain impact of lavender aromatherapy on psychophysiological indices of relaxation in young healthy women. British Journal of Health Psychology, 13, 603–617.

Hrdlicka, M., Vodicka, J., Havlovicova, M., Urbanek, T., Blatny, M., & Dudova, I. (2011). Brief report: Significant differences in perceived odor pleasantness found in children with ASD. Journal of Autism and Developmental Disorders, 41(4), 524-527

Myeong Soo Leea, Jiae Choia, Paul Posadzkib, & Edzard Ernstb (2012). Aromatherapy for health care: An overview of systematic reviews. Maturitas 71 (2012) 257– 260.

Levy, S. E., & Hyman, S. L. (2008). Complementary and alternative medicine treatments for children with autism spectrum disorders. Child and Adolescent Psychiatric Clinics of North America, 17(4), 803-820.

Lindsay, W.E., Black, E., Broxholme, Pitcaithly, D., & Hornsby, N. (2001). Effects of four therapy procedures on communication in people with profound intellectual disabilities. Journal of Applied Research in Intellectual Disabilities, 14, 110-119.

Lindsay, W.N., Pitcaithly, N.Geelen, Buntin, L., Broxholme, S., & Ahsby, M. A comparison of the effects of four therapy procedures on concentration and responsiveness in people with profound learning disabilities. Journal of Intellectual Disability Research, 41, 201-207.

McLay, K. & France, K. (2014). Empirical research evaulating non-traditional approaches to managing sleep problems in children with autism. Developmental Neurorehabilitation, doi: 10.3109/17518423.2014.904452

National Association for Holistic Aromatherapy (2014). http://www.naha.org, accessed 1/9/2015.

Ngygun, Q.,Paton, C. (200*0. The use of aromatherapy to treat behavioural problems in dementia. Int J Geriatr Psychiatry, 23: 337–346.

Polimeni, M., Richdale, A., & Francis, A. (2005). A survey of sleep problems in autism, Asperger, and typically developing children. Journal of Intellectual Disability Research, 49, 260-268.

Podsadzki, P., Alotaibi, & Ernst, E. (2012). Adverse effects of aromatherapy: A systematic review of case reports and case series. Complementary Medicine, 24(3), 147-161.

Redstone, L. (2015). Mindfulness Meditation and Aromatherapy to Reduce Stress and Anxiety. Archives of Psychiatric Nursing 29, 192–193.

Sinha, D., Efrom, C. (2005), Complementary and alternative medicine user in children with attention deficit hyperactivity disorder. J od Pediatric Child Health., 41, 23-26.reference list - new references for current review

Wilder, D. A., Schadler, J., Higbee, T. S., Haymes, L. K., Bajagic, V., & Register, M. (2008). Identification of olfactory stimuli as reinforcers in individuals with autism: A preliminary investigation. Behavioral Interventions, 23(2), 97-103.