

SENSORY-BASED TREATMENT

“The Missing piece in DBT”

The following material and references were developed by Karen M. Moore, OTR/L for the MAOT-1998 conference and was presented with Deane McCraith, MS, OTR/L, professor at Sargent College at Boston University. **Do not copy without permission.**

Some of this material will be further explored in Karen’s book *Sensory-Based Treatment in Adults: Strategies and Stories*, targeted for publication in 2003. The use of sensory strategies is also investigated in an upcoming article in *Occupational Therapy in Mental Health* entitled “Treatment of Adult Psychiatric Clients Using the Wilbarger Protocol.”

DBT – is a marvelous new approach to treatment developed by Dr. Marsha M. Linehan, BUT it requires adaptations for people with chronic mental illness! Her underlying emphasis on the use of validation, belief in the capacity to change, and the importance of the therapeutic relationship is commendable.

DBT (Dialectic Behavior Therapy) was developed by Linehan specifically for the treatment of Borderline Personality Disorder. This treatment approach that has proved to be very successful for this population. It is also being used successfully with the following diagnoses: Substance Abuse, Depression, and Eating Disorders.

I. INTRODUCTION

The objective of this lecture presentation is to introduce the following concepts and complementary treatment strategies in the treatment of persons with Borderline Personality Disorder:

- Appreciate the use of the body to influence the mind.
- Learn to recognize and to work with cognitive limitations.
- Learn powerful sensory strategies that can influence self-control.
- Consider the sensory implications of restraint and self-harm.
- Learn about the implications of sensory defensiveness.

II. SENSORY AND COGNITIVE CONSIDERATIONS IN DBT

A. The cognitive level DBT assumes is much too high. In order to follow-through with the DBT program a person should be at an ACL Level of 5.6 and the person also needs to be in a period of stability in terms of their illness. Linehan (1993) refers to the use of the “wise mind.” In crisis and critical illness there is no “wise mind”. Without intact cognition the mind can’t be used to influence or calm the body as in “mindfulness” techniques.

BUT - the body can be used to influence the mind using sensory techniques.

B. By matching realistic cognitive capabilities, homework assignments and skill building strategies used in DBT can be adapted and simplified in order to facilitate success instead of frustration for clients and therapists alike.

C. Linehan employs the use of sensory strategies that rely on vision, the auditory system, taste, and smell. The use of these senses for calming and self-regulation can be extremely helpful, however, there are much more powerful sensory-based treatment strategies. The powerhouses of calming and organizing sensory input come from vestibular input, deep pressure touch, and proprioceptive input.

D. A disturbed sensory system including sensory defensiveness is most likely present in Borderline clients with PTSD issues who engage in self harm - the underlying physiological disruptions must be addressed before client can be expected to give up these behaviors.

III. COGNITION AND EMOTION

A. Sensorimotor perspective

Sensation is the only gateway the human system has to receive information from the environment in order to make an adaptive response.

Cognition results from what gets in and what gets out! Different from intelligence.

A faulty information system results in maladaptive responses.

Two choices - change system or change environment.

ACL - Allen Cognitive Level (1995) - Screening tool to measure cognition

Most psychotic and chronic patients are in 4.0 - 4.8 range

OT reports: often highest level they see is 5.2 - very limited ability to abstract

DBT program is aimed at a level 5.6 or higher - point at which people consider social standards, begin to plan, and consider alternative solutions

B. Attention and Arousal

States of overarousal are characteristic of individuals with PTSD, Borderline Personality Disorder, and Dissociative Disorder (American Psychiatric Association, 1994; Kolb, 1987; Sansome, Sansome & Wiederman, 1995; van der Kolk, 1997)

Reticular activating system (asleep, awake, alertness, arousal)
(trampoline as well as information filter)

Relationship to stress and protocritic (protective system) 30X rule

Need epicritic or discriminative system - learning, value, etc.

C. According to Hanschu (1995) the Brain Stem prioritizes:

1 Safety and survival

2 Negative emotions and discomfort.

3 Positive emotions and comfort.

4 Information related to learning and exploring.

D. Constant Overarousal – Disregulation

“The behavioral characteristics of borderline individuals can be conceptualized as the effects of emotion dysregulation and maladaptive emotion regulating strategies.”

Linehan (1993)

Results in: Impulsive behavior
Parasuicide
Self Mutilation

Linehan, attributes or “reframes” suicidal and other dysfunctional behaviors as part of the client’s learned problem solving repertoire without consideration for sensory and physiological dysregulation.

Kolb (1987), in his research with Vietnam Veterans with PTSD, concludes that successive arousals of emotions in these individuals, if intense enough, overwhelm, the central controls and lead to activation of lower controls as well as the cortical areas related to emotions and memory.

Kolb refers to this as a “physioneurosis.”

Kolb reports that increase startle reflex and somatic arousal was sometimes observed after gross clinical symptoms of PTSD had disappeared.

E. The Body-Mind Connection

When system is stressed or threatened or under influence of the protocritic system there is **no “wise mind”** Thinking is concrete and focused on immediate present.

At this point the mind is not very available to influence or calm the body.

The body, through the use of the senses, can however be used to calm the system and open the gateways to the use of the mind

F. Primitive behaviors and acting out

Presume overload first

Calm first- Manage behaviors if necessary later

Evaluate environment for sensory triggers (confusion, noise, visual distractions, smell associated with something bad).

III. Power Houses of Sensory Influence

Linehan suggests the use of sensory strategies using taste, smell, vision, hearing, and some touch. These are excellent but do not provide enough input for people in crisis. The powerhouses of sensory influence are the vestibular and proprioceptive systems along with deep pressure touch.

A. Proprioceptive Input

Involves movement, compression, or stretch at a joint

Information on where body parts are & motor planning

Increased discrimination and body awareness, “puts you in the picture”

Strongest feedback- when muscles contract against resistance

Enhances (not increases) serotonergic system, makes system more responsive

Increased stimulation of endorphins if input is strong and sustained

Seekers - head banging, toe walking, teeth grinding

Increased in standing & walking

Strong input from heavy work and exercise

Strategy to organize

Gum chewing is powerful

Note: Activities include heavy work, walking, jogging, canoeing or kayaking, weight lifting, floor exercises, gum/bagel chewing.

B. Vestibular

Involves rotation of the head in space, ocular connections

Apparatus found in ear

Extensor tone and antigravity responses

When underactive - S-curved posture, shuffling gait, weak grip, flattened thenar eminence, ulnar deviation

Great modulator

Works in connection to cerebellar system - helps increase inhibition

Helps Reticular activating system filter better

Fastest way to calm a person down - slow linear vestibular input

Rocker, glider, hammock (rock the baby, fall asleep in car)

Most powerful, longest lasting input

Patient must control, watch for autonomic reactions

Old treatment - spinning schizophrenics

Note: Activities include rocking/gliding, riding in car, head rolls, humming/singing, dancing, tennis/racquet ball, biking.

C. Tactile System

Skin largest sense organ, formed at same time as nervous system

Powerful effect on emotions & entire nervous system

Remember Harlow's monkey- chose fuzzy surrogate over provider of food

Light touch, alerting, fast response, may provoke avoidance

Pressure touch, receptors deeper, slow response, cortical analysis,

calms, invites approach response
 Brain needs lots of tactile input to maintain organization
 Enhances dopamine system, “makes limbic system purr”, increased regulation
 Comfort hugs
 Warm tightly wrapped blanket, ace bandages, spandex
 Massage, lotion or talc rubs, heavy quilt
 Basis for Wilbarger’s Brushing and Beanbag Tapping

Note: Activities include blanket/body wraps, full body massage, hand or foot massage, use of heavy quilt, heavy lap pad, beanbag tapping, manipulation of objects in the hand such as stress balls, sitting on hands or feet.

IV. Applications to DBT

A. Bean Bag Tapping

*Beanbag tapping is a sensory strategy developed to provide strong deep pressure touch input to the body. A 4”X4” beanbag is used to give firm taps to the body beginning with the hands, then the arms, the shoulders, back of the neck, the lower back if comfortable, and the legs and feet. The person taps for about two minutes, moving from one area of the body to the next. The stomach area is always avoided.

*Beanbag tapping can be done throughout the day or at specific times such as morning, noon, and night.

*Self acceptance starts at self awareness - many defensive or traumatized patients become disconnected from the body which has been such a source of betrayal.

***Beanbag tapping** puts the person back in touch and control of body. Each tap says: “This is me, I’m real, I’m doing something good for myself, touch can be good, my body is O.K.”

Meditation vs. Beanbag Tapping

Meditation	Bean Bag Tapping
requires state of self control	creates state of self control
high cognitive demand	minimal cognitive demand
requires concentration	concentration not necessary
imagines present	feels present
invites dissociation	invites integration
works towards self acceptance	starts at self awareness
aims for self control through thoughts	fosters self control through physiology

B. Sensory Based Strategies

1. If client is having trouble with self control place a heavy, folded lead apron in their lap.

2. **Start with beanbag tapping and music with movement:** relaxation, self awareness, and self acceptance. (Work towards using mindfulness when skills are consolidated)
3. **Repeat breathing exercises frequently in short stints,** work up from 3 - 8 breaths. Do at beginning of group, after break, and at end. When clients are trying deep breathing at home, suggest walking meditation. Physical component off-sets tendencies towards thought drifting, flashbacks and dissociation.
4. **Choose tapes carefully.** Avoid man's voice, trigger words. Better off with no words, good beat helps. Borderline clients sometimes report that soft quiet music makes their thoughts drift and sometimes flashbacks and dissociation results.
5. Use props to cue responses (ex. If you are talking about feelings, have a "Feelings Poster" available)
6. **Add a physical component whenever possible.** (Have clients throw a beanbag on feeling or support, make an exaggerated face that corresponds to the feeling, use role playing)
7. Convert information to games
8. **Simplify! Simplify! Simplify!**
9. **Pace slowly, never rush**
10. Use structure and a predictable format to groups
11. Simplify homework, make reasonable demands, make homework self-reinforcing or else clients will associate it with frustration and failure
12. Give physical exercises as homework as much as possible. (Beanbag tapping, short stints of breathing, walking or getting out daily.)
13. **Give clients cue cards to keep in pocket.** (When frightened try: deep breathing for five breaths, beanbag tapping for two minutes, ten head and neck rolls, use scented cream and message hands for three minutes, chew gum, etc.)
14. Inform staff and significant others of calming and grounding strategies and have them cue and encourage client when appropriate.
15. Make **journals very simple.** Have client make ""smiley"" face corresponding to emotions during the day, provide feeling words to circle, rate feelings on a likert scale, count behaviors or blocks of isolation or socialization.
16. **Most likely your client will not be capable of abstraction,** never demand ideas that come purely from within.

V. What happens in restraint?

Struggle releases and uses up stress related chemicals
 Restraint gives lots of deep pressure touch
 Some clients invite restraint as a means of external control
 Process helps to counteract dysregulation

"When I am upset I skulk the unit looking for someone to pick a fight with, and then I end up in restraint." Miss V 1996

VI. What happens with self harm?

“Although the mechanism by which self-mutilation exerts affect-regulating properties is not clear, it is very common for borderline individuals to report substantial relief from anxiety, and other intense negative emotional states following such acts.” Linehan (1993)

Tissue damage releases endorphins which “eat” substance P which is increased during pain or perceived pain including emotional pain.
(Substance P, a neuropeptide is released when nociceptors fire- Wide Range cells of spinothalamic tract)
Brain stem stimulation (heavy work, exercise, proprioception) inhibits nociceptor neurons and thus modulates pain
Continuous pain - increased levels of Substance P - Kindling Effect –
Body responds by resetting pain level - faulty adjustment
Sensory techniques we offer are never going to be as powerful
System needs readjustment through ongoing sensory diet

What happens when input is bad????

VII. Sensory Defensiveness

A. Who does it effect?

1. Strong correlation (80%) with severe or sustained forms of following:

Physical or sexual abuse	Extended Hospitalizations
Emotional Neglect	Institutionalization
Psychological Trauma	Sensory Deprivation
Traumatic Injury	Torture
2. Symptoms range from mild, to moderate, to severe
Range from picky to incapacitation
3. Reasonable assumption: **Many if not most of the Borderline clients you work with have this problem to some degree.**

B. Symptoms

Misinterpretations of sensations	Unexplained explosions of emotions
Touch felt as painful or harmful	Unusual eating habits
Exaggerated personal space	Inflexibility
Patterns of social withdrawal	Over-reaction to unstable surfaces
Touch avoidance	Addictive behaviors
Avoids crowds and lines	Irritated by personal hygiene
Sensory seeking behaviors	Picky illogical clothing choices
Banging head or parts of body	Biting of wrist or arm if upset
Self harming behaviors	Uncomfortable with body or looks

Note the overlap in these symptoms and those frequently observed in the borderline population.

C. Impact on Function

1. Relationship to personal hygiene
2. Patterns of Isolation
3. Avoidance and control - inflexibility
4. Disruption of personal relationships
5. Self-injurious behaviors

D. What Can We Do?

1. **Patients avoid the very sensory input they need**
Analogy to “image flipping glasses” experiment
2. **Wilbarger Protocol**
Brushing
Oral Sweeps
Sensory Menu
3. Self acceptance starts at self awareness - many defensive or traumatized patients become disconnected from the body which has been such a source of betrayal. **Beanbag tapping** puts the person back in touch and control of body. Each tap says: “This is me, I’m real, I’m doing something good for myself, touch can be good, my body is O.K.”
4. **Groups and education regarding sensory defensive symptoms**

“Participation in this (Sensory Defensiveness) group has helped me reframe some of my behaviors in a different light. Now I don’t beat myself up so much for doing these things. I have a different understanding.” ML

5. Research Study

Treatment of Adult Psychiatric Patients Using the Wilbarger Protocol

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The three case stories from this study are explored in detail in an article that will be published in the upcoming issue of *Occupational Therapy in Mental Health*.

This small pilot study examined the effect of using Wilbarger’s brushing and joint compression protocol on symptoms associated with Sensory Defensiveness among women in psychiatric care with histories of trauma and self-injurious behaviors.

Overall results were very positive. The three participants who were very self-injurious had no incidents of self-injury 18 months post treatment. At follow-up all three participants were re-engaged in valued life roles that had previously been disrupted.

REFERENCES

- Allen, C., Blue, T., Earhardt, C., (1995). *Understanding Cognitive Performance Modes*. Ormond Beach, FL: Allen Conferences Inc.
- American Psychiatric Association, (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Press.
- Ayres, J. J. (1989). *Sensory integration and the child*. Los Angeles: Western Psychological Services
- Bright, T., Bittizh, K., & Fleenan, B. (1981). Reduction of self-injurious behavior using SI techniques. *American Journal of Occupational Therapy*, 35 (3): 167-172.
- Gunderson, J.G., & Chu, J.A. (1993). Treatment implications of past trauma in borderline personality disorder. *Harvard Review of Psychiatry*, 1 (2), 75-81.
- Hale, L.H.B., & Coy, A.H. (1997). Collaboration and cross-referral in the treatment of sexually reactive youth. *Sensory Integration Special Interest Section Newsletter*, 18 (2), 1-4.
- Hansch, B. (1995). Evaluation and treatment of sensory processing disorders. Seminar. Howell, MN: Sensory Consortium.
- Kolb, L.C. (1987). Neurophysiological hypothesis explaining posttraumatic stress disorder. *American Journal of Psychiatry*, 144, 989-995.
- Linehan, M.M. (1993). *Skills training manual for treatment of borderline personality disorder*. New York: Guilford Press.
- Moore, K.M., (1996). Sensory defensiveness screening for adults. Unpublished evaluation tool.
- Reisman, J., & Hansch, B. (1990) *Sensory inventory for adults with developmental disabilities – users guide*, PDP Products, Hugo MN
- Ross, M., (1991). *Integrative group therapy – the structured five stage approach*, Slack, Inc., Thorofare, NJ
- Ross, M., (1997). *Integrative group therapy – mobilizing coping abilities with the five-stage group*, AOTA, Bethesda, MD
- Royeen, C.B., & Lane, S.J. (1991). Tactile processing and sensory defensiveness. In Fisher, A.G., Murray, E., & Bundy, A. (Eds). *Sensory integration: theory and practice* (108-137). Philadelphia, PA: F.A. Davis.

Sansone, R.A., Sansone, L.A., & Wiederman, M. (1995). The prevalence of trauma and its relationship to borderline personality symptoms and self-destructive behaviors in a primary care setting. *Archives of Family Medicine*, 4 (5), 439-442.

Van der Kolk, B.A., Perry, J.C., Herman, J.L. (1991). Childhood origins of self-destructive behavior. *American Journal of Psychiatry*, 148, 1665-1671.

Van der Kolk, B., (1997). The body keeps the score: Memory and the evolving psychobiology of post traumatic stress. *Trauma Info Pages, Bookshelf*, online 22 pages. Available at <http://gladstone.uoregon.edu/%7Edvb/vanderk4.htm>

Wilbarger, P. (1995). The sensory diet: activity programs based on sensory processing theory. *Sensory Integration Special Interest Section Newsletter*, 18 (2), 1-4.

Wilbarger, P., & Wilbarger, J. (1991). *Introduction to sensory defensiveness: an intervention guide for children 2-12*. Santa Barbara, CA: Avanti Educational Programs.