

# Sensory processing patterns and sensory modulation in mothers admitted to a mother-baby unit

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*Gold Coast University Hospital | Lavender Mother-Baby Unit*



# Overview

- Background information
- Sensory processing patterns
- Intervention with sensory modulation
  - Workbook
  - Triggers and warning signs
  - Activity card sort
  - Sensory kit
- Outcomes

# Co-Occupations of Motherhood



Play



Feeding



Settling



Exercise



Waking up



Dressing



Bathing



Relationship

# Our senses

## Sight



1



The **size, shape, colour** of objects we see.  
For example, seeing your baby's smile.

## Touch



2



What your hand, arms and overall body **feels**.  
Key in **bonding** in your relationships with your baby and others.

## Hearing



3



**Sounds, vibrations, rhythm, noise level**, judging how **near or far away** something may be.  
For example, listening out for your baby's cries.

## Smell



4



Smells are closely linked to our **emotions and memories**. For example, you may feel calm when you smell lavender.

## Taste



5



**Textures, temperatures, tastes**.  
For example, salty, sweet, spicy, sour. This also includes the movements of your mouth muscles and tongue. For example, talking, blowing bubbles.

## Proprioception



6



**Knowing where your body is in space** and sensing your bodies **movements** like push and pull. For example, your ability to know that you are still rocking your baby gently, even with your eyes closed.

## Vestibular

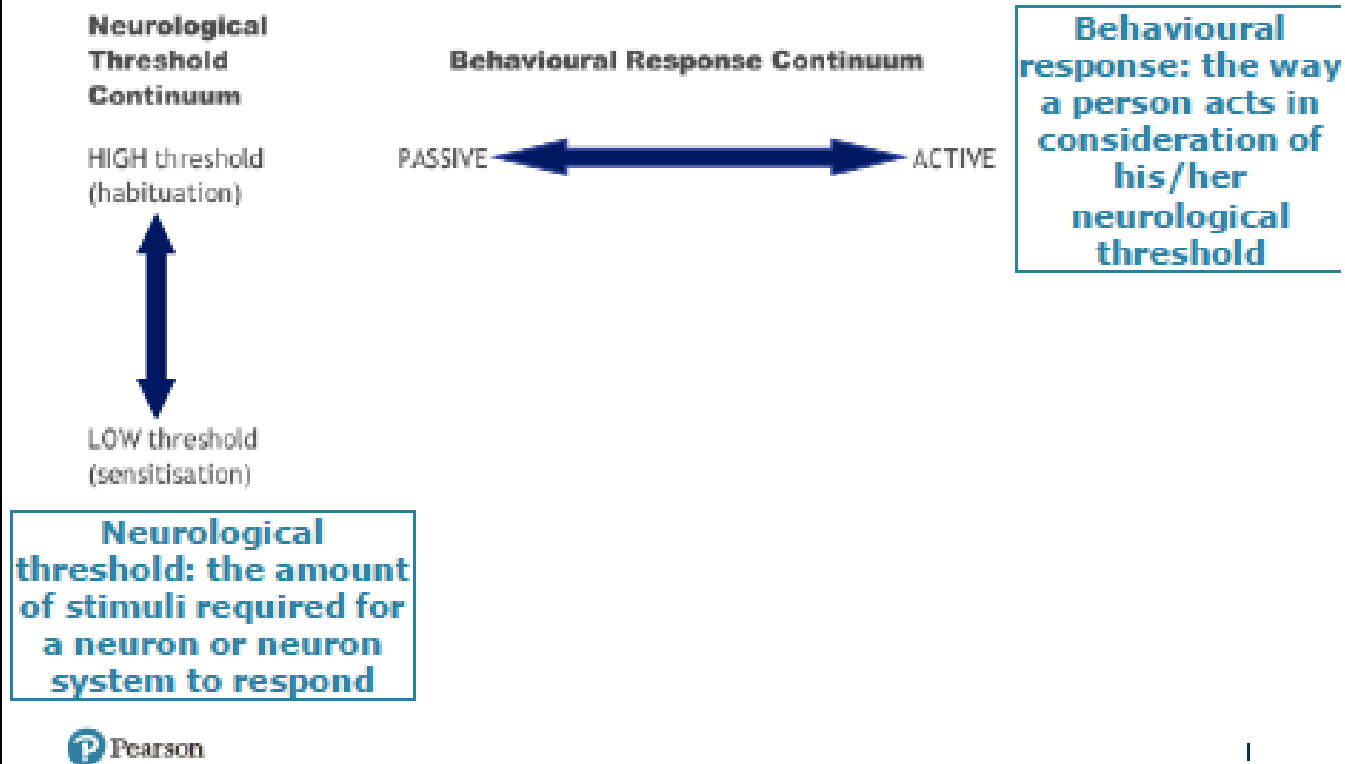


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**Balance**, knowing the **speed and direction** of your movements. For example, if you close your eyes on a swing, you can still sense the speed and direction you are going.

## Dunn's model of sensory processing

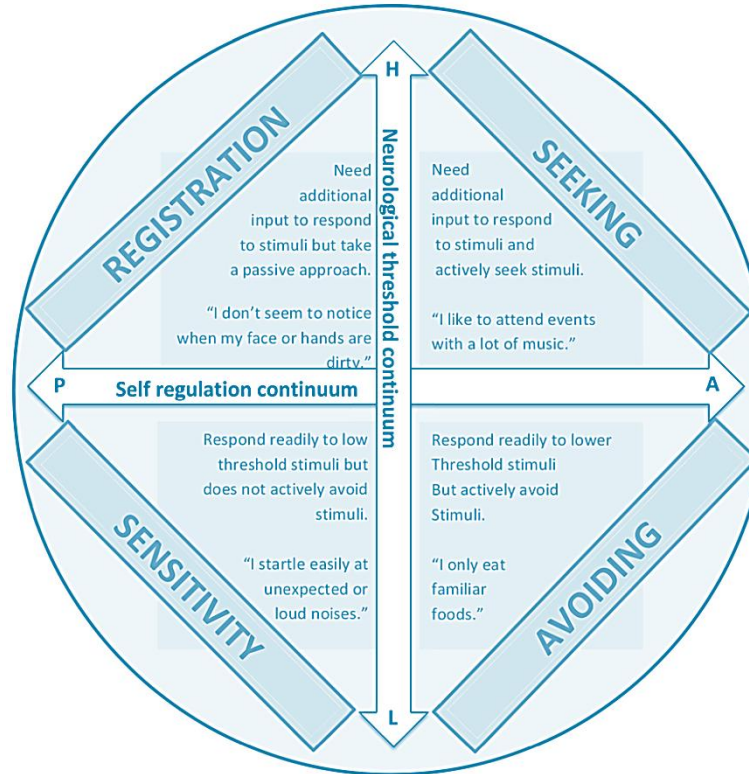


# Dunn's model of sensory processing

Neurological Threshold Continuum	Behavioural Response Continuum	
	PASSIVE	ACTIVE
HIGH threshold (habituation)	<b>Low Registration</b> <ul style="list-style-type: none"> <li>▪ 'Miss' sensory information</li> <li>▪ Easygoing</li> </ul>	<b>Sensation Seeking</b> <ul style="list-style-type: none"> <li>▪ Continually adding sensory input to tasks</li> <li>▪ Likes to be busy</li> </ul>
LOW threshold (sensitisation)	<b>Sensory Sensitivity</b> <ul style="list-style-type: none"> <li>▪ Continually detecting sensory input</li> <li>▪ Heightened awareness</li> </ul>	<b>Sensation Avoiding</b> <ul style="list-style-type: none"> <li>▪ Withdraws from overwhelming sensory input</li> <li>▪ Likes order and routine</li> </ul>



# Sensory Patterns



## Dunn's sensory processing framework

- Seeking – the degree to which a person *obtains* sensory input
- Avoiding – the degree to which a person is *bothered* by sensory input
- Sensitivity – the degree to which a person *detects* sensory input
- Registration – the degree to which a person *misses* sensory input





# Low registration

- I don't smell things that other people say they smell
- I trip or bump into things
- I don't notice when people come into the room
- I miss the street, building, or room signs when trying to go somewhere new
- I get scrapes or bruises but don't remember how I got them
- I seem slower than others when trying to follow an activity or task
- I don't notice when my name is called

# Sensory seeking

- I add spice to my food
- I go over to smell fresh flowers when I see them
- I enjoy how it feels to move about (for example, dancing, running)
- I choose to engage in physical activities
- I like to wear colourful clothing
- I like how it feels to get my hair cut
- I like to go barefoot
- I do things on the spur of the moment
- I like to attend events with a lot of music

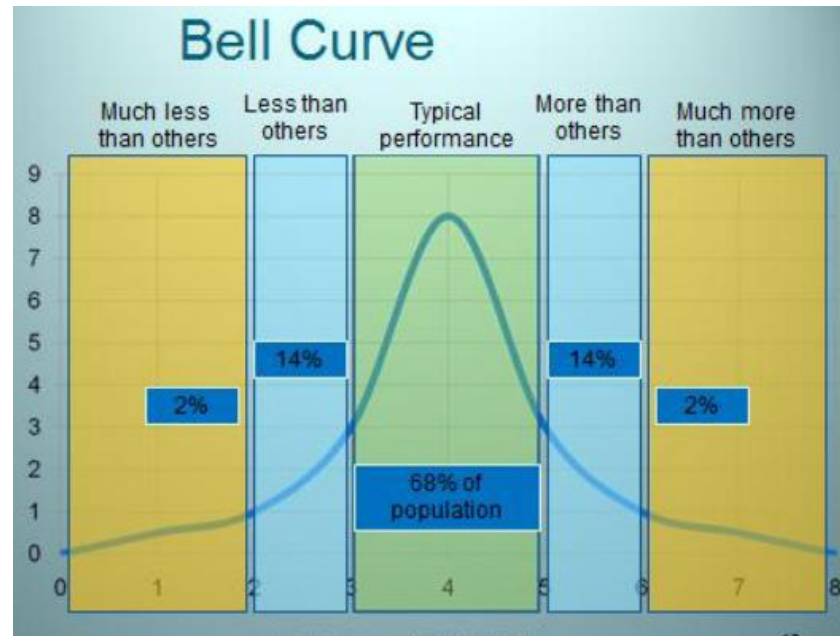
# Sensory sensitivity

- I don't like strong tasting mints or candies (e.g., hot/cinnamon or sour candy)
- I dislike the movement of riding in a car
- I become dizzy easily (e.g., after bending over, getting up too fast)
- I am bothered by unsteady or fast moving visual images in movies or TV
- I am bothered by the feeling in my mouth when I wake up in the morning
- I find it hard to concentrate for the whole time when sitting in a long class or meeting
- I am distracted if there is a lot of noise around me

# Sensory avoidance

- I leave or move to another section when I smell a strong odour in a store (e.g., bath products, candles, perfumes)
- I only eat familiar foods
- I avoid elevators and/or escalators because I dislike the movement
- I choose to shop in smaller stores because I'm overwhelmed in large stores
- I move away when others get too close to me
- I stay away from crowds
- I stay away from noisy settings

# Compared to normative data



# Current literature

- Extreme levels of sensory patterns associated with increased distress and mental illness

(Meredith et al., 2015)

- Parenting styles in primary school-aged children linked with sensory sensitivity and attachment

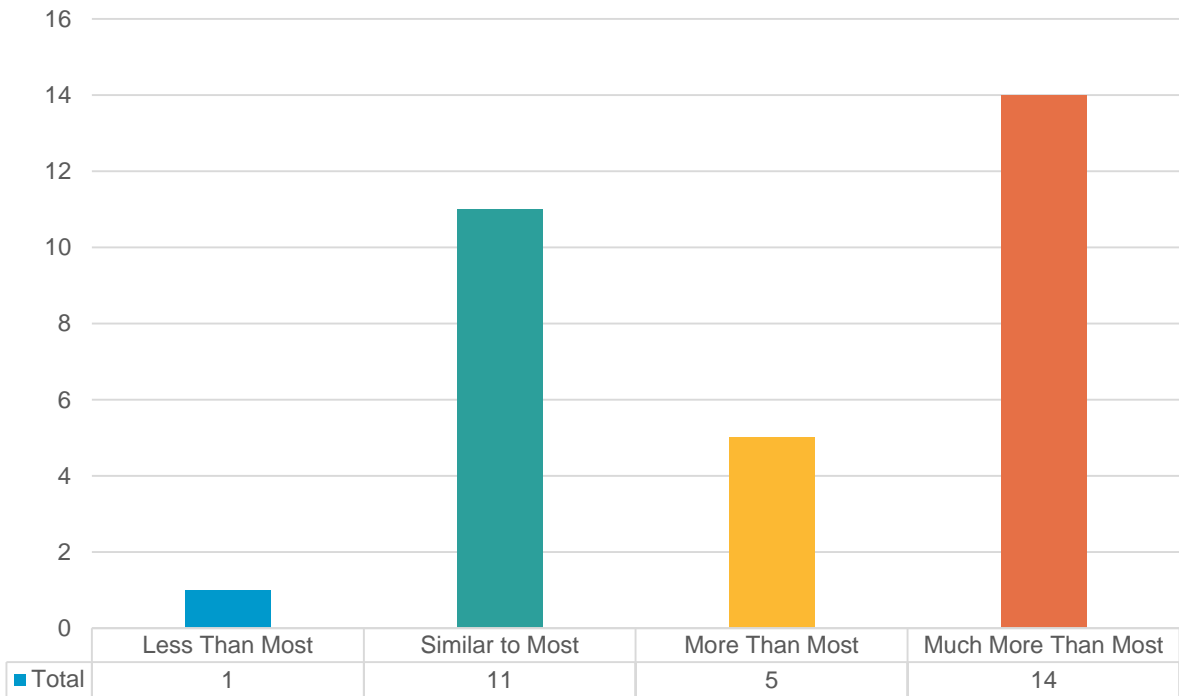
(Branjerdporn et al., 2019)

# Sensory processing of our mothers

- N = 31
- Admitted to Lavender Mother-Baby Unit (4 bedded state-wide unit opened 2017)
- Range of diagnoses (psychosis, anxiety, depression, borderline personality disorders)
- Infants under 1 yo
- Occupational therapy

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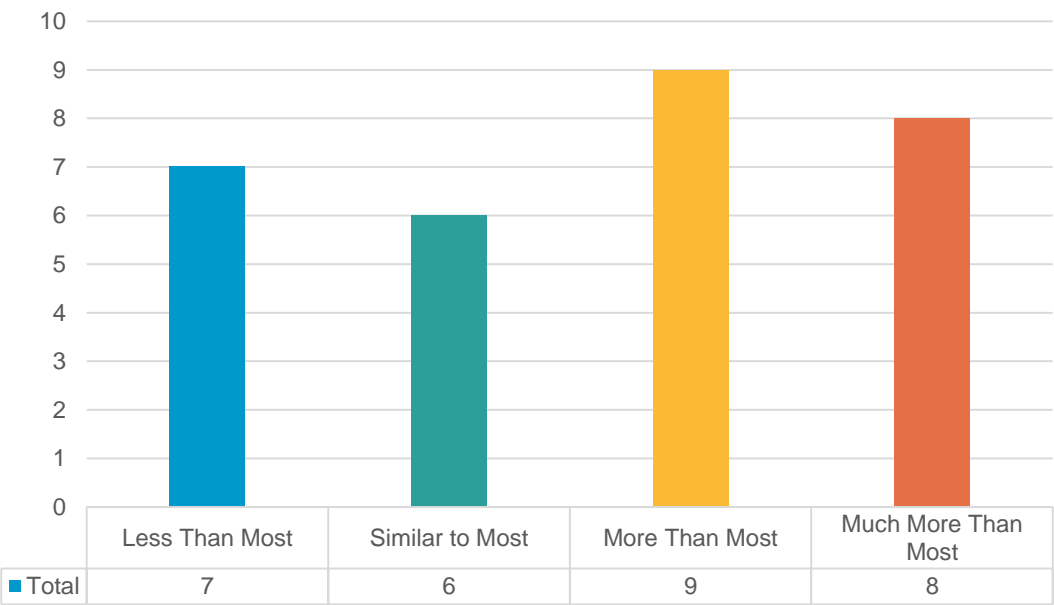
## Sensory Sensitivity



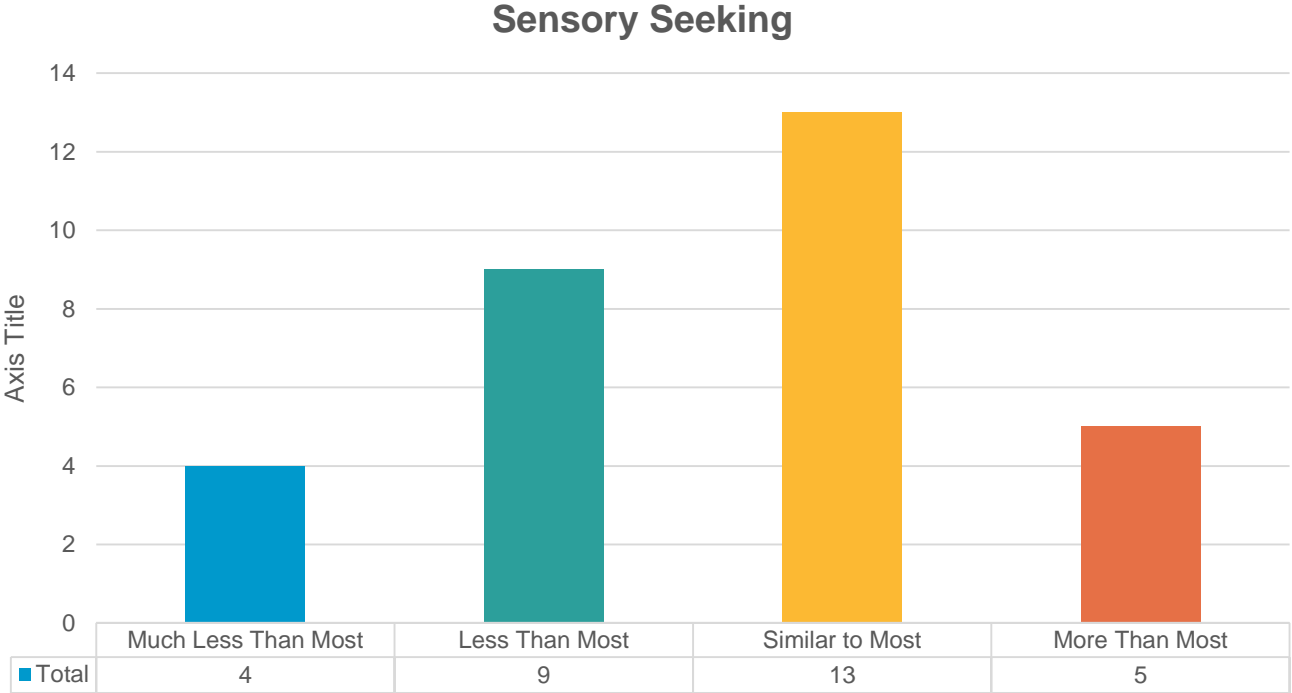


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## Sensory Avoidance

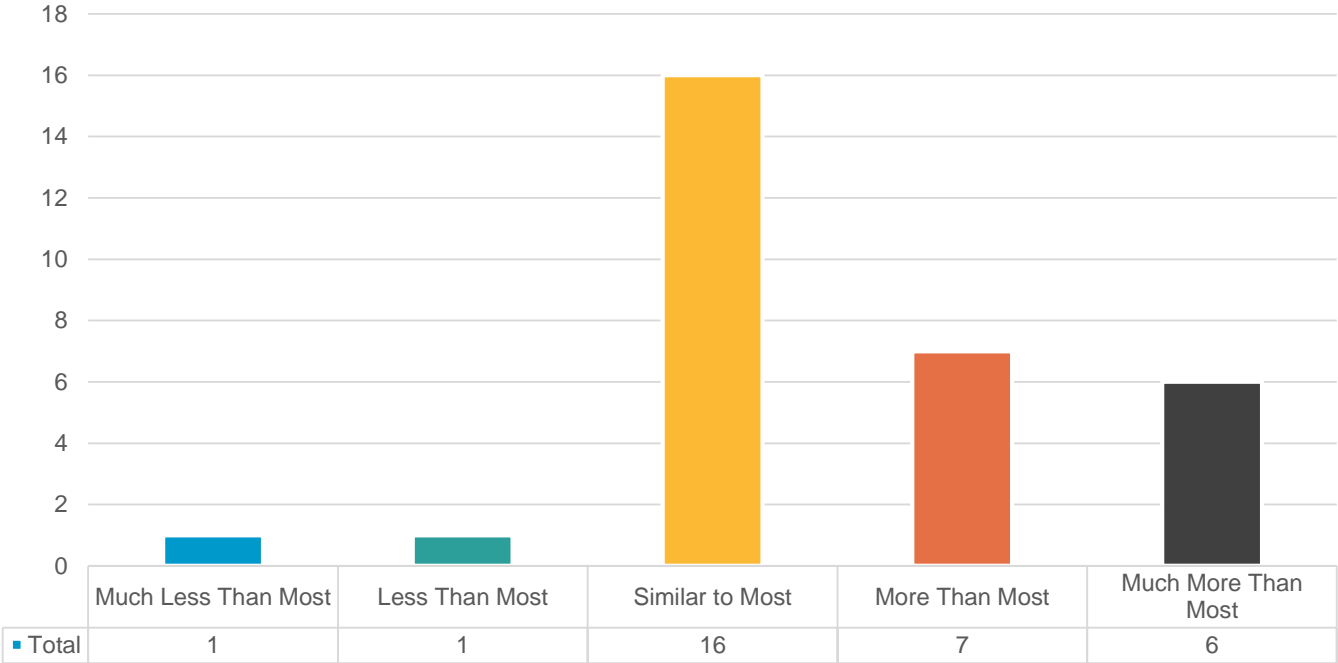


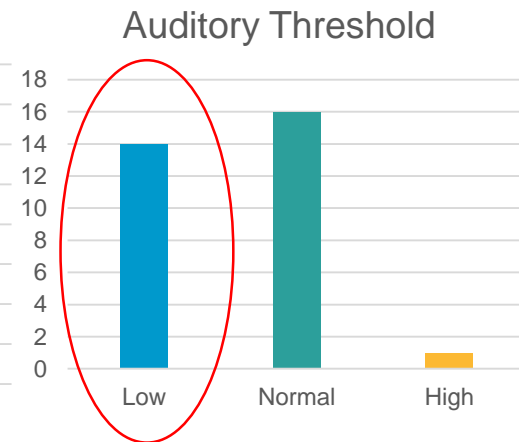
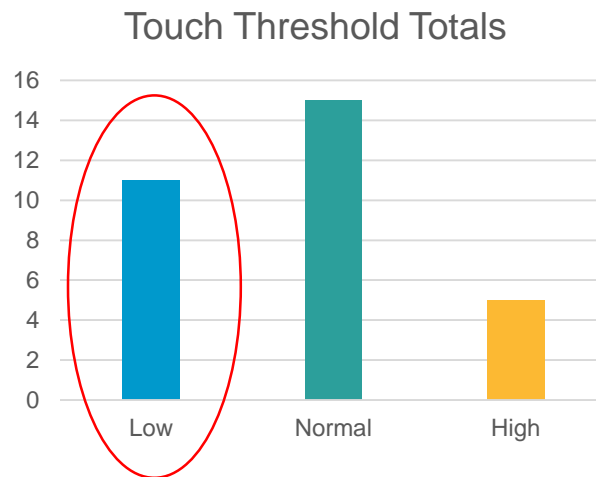
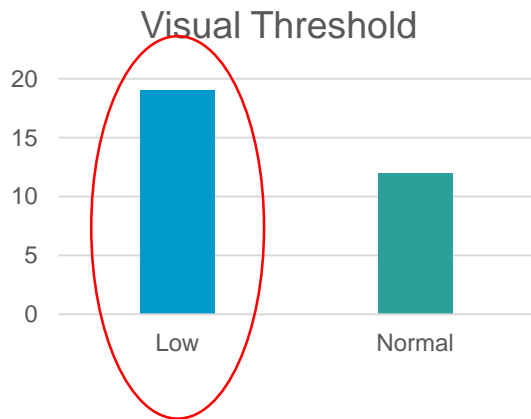
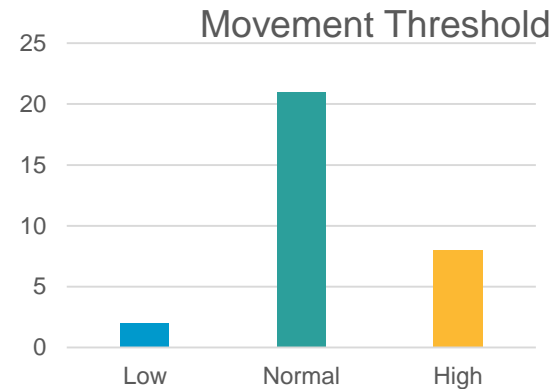
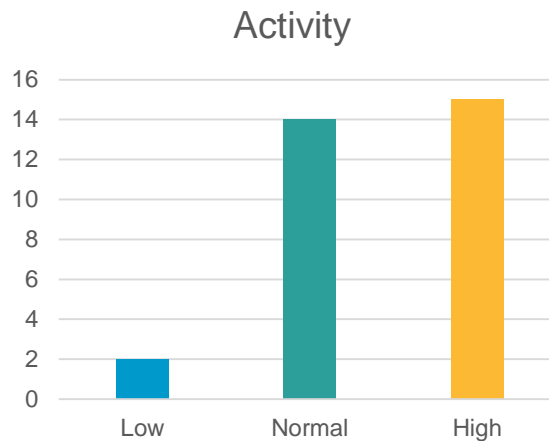
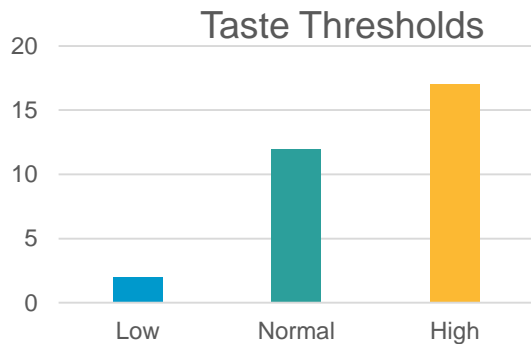
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Low Registration





# Sensory Modulation in practice

- “ the capacity to regulate and organize the degree, intensity and nature of responses to sensory input in a graded and adaptive manner. This allows the individual to achieve and maintain an optimal range of performance and to adapt to challenges in daily life “
  - Miller, Reisman, McIntosh & Sina 2001





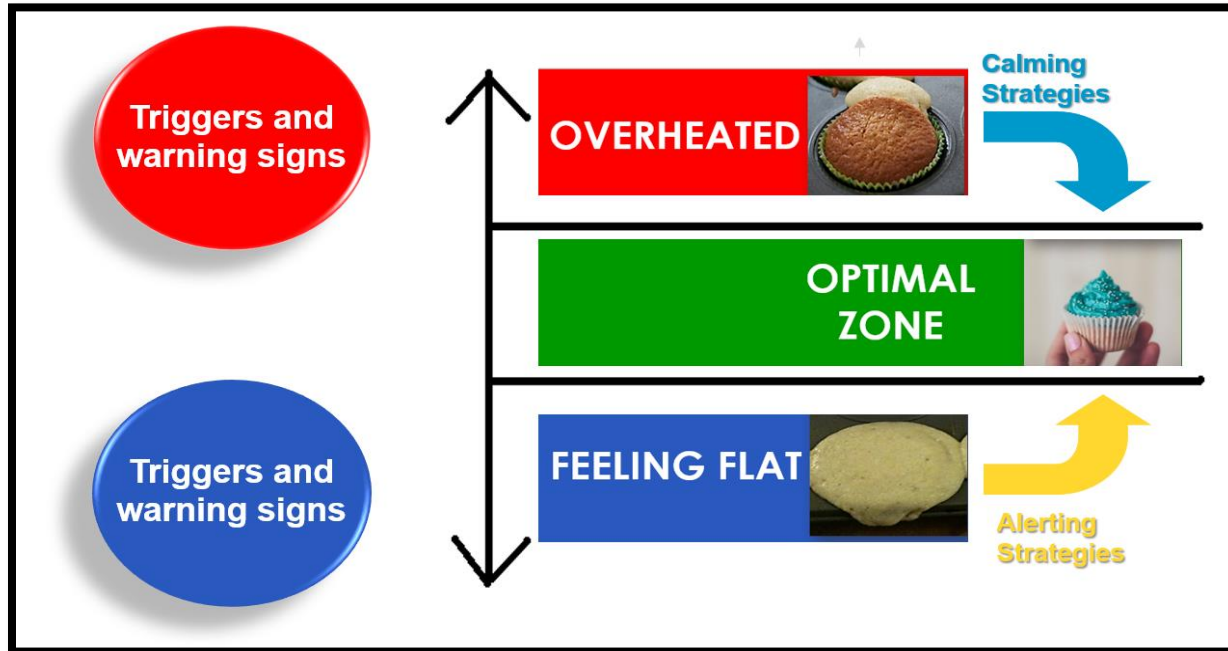


# Sensory Modulation Workbook



## Workbook

# Sensory modulation





# Mother-Baby Bond



**Your Mother-Baby Bond**

A mother's love helps build the strong bond between you and your baby.

Reading and responding to your baby's cues helps you get to know your baby.

Your bond can be enhanced by learning more about who you are.

Understanding your senses makes interacting with your baby more enjoyable.

Understanding your baby will strengthen your bond.

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**Building Blocks to your Mother-Baby Bond**

Me Me & Baby Baby

A healthy bond with your baby helps them learn how to speak, solve problems and interact with others.

Your consistent love and care helps form a strong relationship with your baby that is so important for them to grow up happy and healthy. These moments make your baby feel secure, cared for and close to you.

Understanding your baby's needs as well as likes and dislikes helps you to respond to your baby appropriately. Responding well to your baby's cues supports good experiences together and helps your baby's development.

You and your baby receive, process and respond to information from our senses, called sensory processing. For example, if your baby eats something yucky, their taste sense will notice this, then spit it out.

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# Sensory Modulation




## What are Your Senses?

Did you know that you actually have 7 senses?

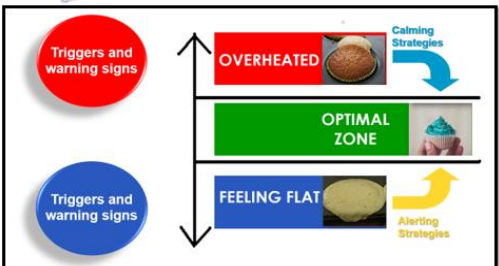
 1	 <b>Sight</b>	The size, shape, colour of objects we see. For example, seeing your baby's smile.
 2	 <b>Touch</b>	What your hand, arms and overall body feels. Key in bonding in your relationships with your baby and others.
 3	 <b>Hearing</b>	Sounds, vibrations, rhythm, noise level, judging how near or far away something may be. For example, listening out for your baby's cries.
 4	 <b>Smell</b>	Smells are closely linked to our emotions and memories. For example, you may feel calm when you smell lavender.
 5	 <b>Taste</b>	Textures, temperatures, tastes. For example, salty, sweet, spicy, sour. This also includes the movements of your mouth muscles and tongue. For example, talking, blowing bubbles.
 6	 <b>Proprioception</b>	Knowing where your body is in space and sensing your bodies movements like push and pull. For example, your ability to know that you are still rocking your baby gently, even with your eyes closed.
 7	 <b>Vestibular</b>	Balance, knowing the speed and direction of your movements. For example, if you close your eyes on a swing, you can still sense the speed and direction you are going.

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## Strategies to Manage Daily Challenges




When either of you are **overheated**, you can choose a strategy that helps you **calm** down. Alternatively, when either of you are **feeling flat**, you can choose a strategy that **alerts** you.

The power of Sensory Modulation is in identifying you and your baby's **Triggers & warning signs** **early** so that you can learn to intervene with **early** and hopefully **avoid** extreme **OVERHEATED** and **FEELING FLAT**.

Then you can get **back into your** **OPTIMAL ZONE** where you function at your best!

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# Triggers and Warning Signs

## Triggers - YOU

Triggers are **things, actions, environments, or situations** that take you out of your optimal zone and into either the overheated or flat zones.

*Again, you are unique and your triggers are unique to you.*

Sort the Trigger Cards to find out what your triggers are.



## Triggers - BABY

Because your baby has a sensory preference, your baby also has triggers that may send them into the overheated or flat zones.

*Your baby's triggers may look different to yours...*

Sort the Trigger Cards to find out what your baby's triggers are.



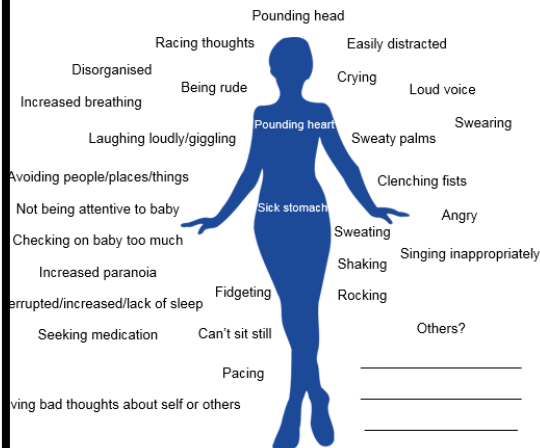
Previous mother from Lavender:  
"From doing the Trigger Cards, I realised that noisy, busy places send my baby and I into the overheated zone."

## Warning Signs - YOU

When you experience triggers, you will respond with warning signs.

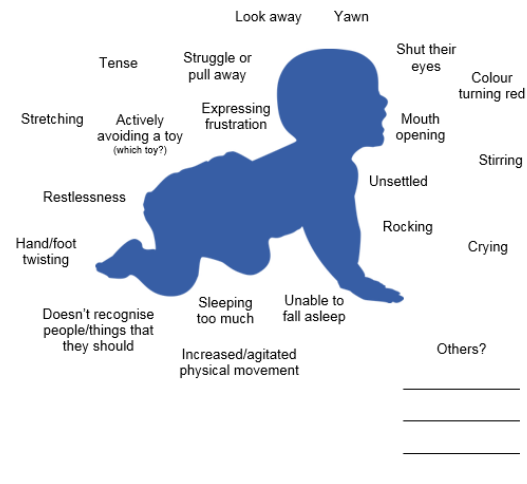
For example, when your baby won't stop crying, you may notice that you start speaking rudely to others out of the frustration.

Circle the warning signs you can relate to when you feel out of your optimum (overheated and/or flat):



## Warning Signs - BABY

Did you know babies can talk? They just do so through actions and noises! It may be hard to recognise their response to these triggers but here are some **warning signs to look out for:**















# Activity Card Sort





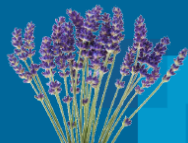
# Handouts

<input type="checkbox"/> <b>Aromatherapy</b>  From essential oils, perfumes, diffusers - do you have one at home? What are your alerting smells, e.g. citrus, fresh smells, peppermint?	<input type="checkbox"/> <b>Scented creams/shower gels</b>  Which ones? Which textures? Which smells e.g. citrus, fresh smells, peppermint?	<input type="checkbox"/> <b>Candles</b>  Which smells e.g. Citrus, fresh smells, peppermint?
<input type="checkbox"/> <b>Wearing perfume</b>  Which one?	<input type="checkbox"/> <b>Music</b>  Slow or fast? Loud or soft? Which sounds e.g. nature sounds, instrumentals, upbeat nursery rhymes or songs (which ones)?	<input type="checkbox"/> <b>Singing/humming to your baby</b>  Which songs/rhymes?
<input type="checkbox"/> <b>Talking to your baby</b>  What do you talk to your baby about?	<input type="checkbox"/> <b>Talking in person/on the phone to a friend/family member</b>  Who? Where and when do you like to make phone calls?	<input type="checkbox"/> <b>Guided relaxation/mindfulness exercise</b>  E.g. Using an app, DVD, CD, or podcast
<input type="checkbox"/> <b>Deep breathing exercises</b>  Using an app, DVD, CD, podcast, personal technique like the 4-2-6 (breathe in for 4 seconds, hold breath for 2 seconds, breathe out for 6 seconds).	<input type="checkbox"/> <b>Carrying objects</b>  E.g. Carrying shopping bags, wiping down table, carrying books, carrying baby	<input type="checkbox"/> <b>Ball toss to a rhythm</b>  E.g. Handball against a wall

<input type="checkbox"/> <b>Bouncing your baby</b>  	<input type="checkbox"/> <b>Blowing bubbles</b>  	<input type="checkbox"/> <b>Use of fidget tools</b>  Which ones e.g. fidget cube, fidget spinner?
<input type="checkbox"/> <b>Wrap up tight with a sheet/blanket</b>  	<input type="checkbox"/> <b>Weighted blanket/vest</b>  	<input type="checkbox"/> <b>Baby massage</b>  
<input type="checkbox"/> <b>Playing with baby</b>  	<input type="checkbox"/> <b>Hot/cold shower/bath</b>  Which do you like to alert you?	<input type="checkbox"/> <b>Breastfeeding/bottle feeding</b>  Is there an optimal environment you like to breastfeed in?
<input type="checkbox"/> <b>Cooking/baking</b>  What do you like to cook? Who do you cook for? When do you cook? Why is cooking alerting for you?	<input type="checkbox"/> <b>Face washing/make-up routine</b>  	<input type="checkbox"/> <b>Covering face with a cold face cloth/washing hands in cold water/holding ice</b>  Which do you like?

# Sensory Kit

## Sensory Kit



Our seven senses help us to receive, process and respond to our sensory environment. Our senses have the power to change how we feel to improve our mood.

A sensory kit is a self-created bag to keep meaningful items that can help you feel calm before and during crisis states.

Therefore, your choice of items is very individual to you. Below are some examples of what you might include in your sensory kit.

You may select any items from your sensory kit when you need to calm down, reduce stress, feel more organised, control your emotions or be more alert.

### Taste (Gustatory)



We can taste a variety of different flavours, textures and temperatures.

This also includes sensors in our mouth and face muscles which allow us to chew, swallow, blow, whistle and communicate.

Foods can help with overall organization, comfort, attention or alerting. These food items might include:

- **Organising** (chewy): Chewing gum, dried fruits, gummy bears, licourice, jelly beans
- **Calming** (warm, creamy, sweet): oatmeal, soup, hot chocolate, yoghurt
- **Attention** (sucking, blowing): drink through a straw, blowing bubbles
- **Alerting** (crunchy, sour, spicy, cold): Sour warheads, granola, carrots, celery



Fruits and nuts



Warhead sweets

### Smell (Olfactory)



Our sense of smell helps us to recognise if our environment is safe, harmful or important to notice or not. Smell can also trigger memories of long-forgotten event or experiences.

The following scented items might be helpful for managing your mood:



Hair gel hair spray



Body wash/lotion



Your favourite perfume



Essential oils

### Hearing (Auditory)



Our sense of hearing helps us to identify and interpret sounds, vibrations, rhythm, noise level and judge how near or far away something may be within our environment.

It is common that constant loud noises/screams/upbeat rhythm can trigger irritability, anger or sadness.

These are some ways to assist you in managing your emotions when feeling overwhelmed:



Hummingbird



Your favourite music



Meditation CDs or iPod



Noise cancelling headphones



White noise

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### Touch (Tactile)



Our sense of touch helps us receive and interpret information about deep and light pressure, vibration, movement, pain and temperature. We sense whether something feels rough, smooth, slimy or sticky.

These items may help you feel grounded:



Soft fluffy teddy bear



Star Fidget Octopus



Hair brush



Therapy



Zipper Fidget

### Sight (Visual)



Our eyes allow us to see and interpret things around us in relation to their sizes, shapes or colours.

Each person adapts differently to light brightness, intensity and contrast.

Some people prefer a cluttered environment whereas others prefer a tidy environment.

Depending on your sight preferences, these are some suggestions that may help you be in tune with your body and surroundings.

- Dim / bright light
- No clutter
- Busy environment (e.g., shopping mall)
- Natural light (e.g., park/garden)

Items you may consider to have in your sensory kit:



Photo book



Disco ball in room



Water timer

### Vestibular



As we move our body in different speeds and directions, this system allows us to know where our head position is in relation to our body and environment. Movements can help you feel free and easy.

These are some activities that you might like to do to reduce your stress/anxiety:

- Rocking
- Twirling
- Swivelling
- Swinging
- Dancing
- Cycling



### Body Position (Proprioception)



This sensory helps you be aware of where your body part is in space, even with your eyes closed.

We receive this sensory input through deep pressure, squeezing, hugging, vibration or joints stretching.

Suggested items to include in your sensory kit are:



Pillow/bolster



Resistance bands/stretches



Weighted lap



Stress ball



Vibration massager



Weighted blanket/shawl



Weighted snake

Please let the nursing staff at Lavender unit know when you need to use any items from your sensory kit. They can support you through using them appropriately.

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## Case J and Baby R

- 35 yo mother of 2 children age 14 and 8 months
- Referred with depression, anxiety and suicidal ideation
- Dx Aspergers in primary school
- Relationship strain with partner deaf from work accident
- Struggling with bond with baby

# Observations in groups

- Baby play and massage
  - Struggled with play , easily overwhelmed and poor engagement with baby
- Sensory Modulation group
  - Triggers
    - Noise
    - Touch
    - Keeping up with baby's development



## Sensory profile

- Sensory sensitivity – **MUCH MORE THAN MOST**
- Sensory Avoidance – **MORE THAN MOST**
- **Low Threshold to auditory and visual input**
- Low registration – **MORE THAN MOST**
- **High threshold to taste and smell**

# INTERVENTION STRATEGIES

- Educate staff
- Organise environment
- Cover or visually block out stimuli
- Low registration to smell
- Sensory tool kit

# Partner's Sensory profile

- Low registration – **MORE THAN MOST**
  - **Auditory, taste and smell**

# Outcome

- When hyperaroused
  - calming: koosh ball, dim lights, quiet space
  - Peppermint scent used for distraction
  - Sour lollies used for halting racing thoughts
  - Dimming lights and reducing noise in the evening in preparation for sleep
  - Using face mask and ear plugs to support sleep
- Baby Play
  - Awareness helped her to engage in a variety of play activities
- Working on intervening early to prevent escalation

# Outcomes

# Outcomes

- Positive feedback
- Improved mother-baby attachment
- Improved maternal emotional regulation
- Reduced maternal distress
- Improved parenting confidence
- Further evaluation to be undertaken

Any questions?

# References

Branjerdporn G, Meredith P, Strong J, Green M (2019) Sensory sensitivity and its relationship with adult attachment and parenting styles. PLOS ONE 14(1): e0209555.

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