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Should Therapists Pay More Attention to Sensory Processing Sensitivity in Individuals with Depression?

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Abstract:

Ever since the concept of Sensory Processing Sensitivity (SPS) was introduced, extensive research has solidified its theoretical and empirical foundations. SPS is characterized by enhanced awareness, deeper information processing, and increased emotional and physiological reactivity (Acevedo, 2020). Moreover, research has found that a significant portion of 20-30% of the population exhibits high SPS (Greven et al., 2018). The prevalence of SPS becomes particularly concerning for increasing the likelihood of individuals developing depression. Studies indicate that individuals with high SPS are more susceptible to depressive symptoms under stress (Wu et al., 2020). High levels of sensory processing sensitivity might be related to the appearance of depression. This raises critical questions about current therapeutic practices: Do therapists consider SPS when diagnosing depression? Should treatment protocols differ for patients with both depression and high SPS compared to those without SPS? This literature review aimed to explore the relationship between SPS and depression and how therapists might leverage this understanding to refine diagnostic and treatment methods for individuals with high SPS. To examine potential ways to ensure that SPS is appropriately considered in depression diagnoses, this review also compared and contrasted diagnostic methods for individuals with high SPS and those with depression. Furthermore, the review explored possible alternative treatments that could be used or developed specifically for individuals with high SPS and depression.

Keywords: "depression," "Sensory Processing Sensitivity," "SPS," "Highly Sensitive Person," "diagnosis," and "treatment."

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1. Materials and Methods

This literature review aims to explore the relationships, diagnostic methods, and treatments of depression in individuals with Sensory Processing Sensitivity (SPS). The goal is to compile comprehensive information to assess whether therapists should focus more on detecting high SPS in patients with depression and whether alternative treatments should be provided for these patients.

1.1 Literature Search

The literature search was conducted using PubMed and Google Scholar. Keywords related to depression and SPS were used to identify relevant studies. The search terms included combinations of "depression," "Sensory Processing Sensitivity," "SPS," "Highly Sensitive Person," "diagnosis," and "treatment."

1.2 Inclusion Criteria

The inclusion criteria for selecting documents were: 1. Papers discussed the relationship between SPS and depression. 2. Papers mentioned diagnostic methods for SPS and depression. 3. Papers discussed treatment approaches for depression and SPS.

1.3 Analysis

The identified documents were reviewed to extract relevant information regarding the relationship between Sensory Processing Sensitivity (SPS) and depression. Arguments and findings from these studies were analyzed to understand the current perspectives on the association between SPS and depression. Furthermore, the diagnostic methods and treatments for SPS and depression were compared and contrasted. This comparison aimed to explore any differences or similarities in diagnosing and treating individuals with depression and individuals with high SPS. The review included a process of recording the various types of diagnostic methods and treatments mentioned for both depression and high SPS. Considering the methods mentioned in the document are likely the prevalent methods to diagnose and treat depression and high SPS, the comparison and contrast process will start from the recording result.

The findings from this analysis will be used to discuss whether therapists should focus more on detecting high SPS in individuals with depression and whether specialized treatments should be provided for depressed individuals with high SPS.

2. Results

After reviewing numerous documents on Google Scholar and PubMed, 22 key papers were selected for discussing the relationship between Sensory Processing Sensitivity (SPS) and depression, as well as the diagnostic methods and treatments for both conditions.

2.1 Relationship between SPS and depression

All documents show a strong association between Sensory Processing Sensitivity (SPS) and depression. Some highlights of the relationship between depression and SPS are listed below.

Emotion Regulation: Highly sensitive individuals are more aware of subtleties and more easily over-aroused (Aron et al., 1997). Moreover, over-arousal can lead to greater emotional responses and difficulty in emotional regulation (Wyller et al., 2017). Therefore, increased emotional reactivity might contribute to mental health issues such as depression and anxiety (Liss et al., 2008). Further research found that individuals with high Sensory Processing Sensitivity (SPS) who have difficulties regulating their emotions are more likely to experience depression. These individuals are often more aware of their emotions but frequently feel that they lack effective strategies to manage them, especially negative emotions, leading to higher levels of depression (Brindle et al., 2015).

Sensory avoidance: Individuals who actively avoid sensory stimuli due to discomfort or overwhelm can limit their engagement in daily activities and social interactions, potentially leading to increased feelings of isolation and depression (Serafini et al., 2017). More specific research indicates that harm avoidance, characterized by a tendency to be cautious, fearful, and apprehensive in new situations, can contribute to chronic anxiety and depression (Hofmann et al., 2007).

Hypo- and hypersensitivity with depression: Both hypo- and hypersensitivity were found to be associated with higher levels of depression (Serafini et al., 2017). For example, individuals with Major Depressive Disorder (MDD) can exhibit both hypersensitivity and hyposensitivity to sensory stimuli (Engel-Yeger et al., 2016). This indicates that more effective, individualized interventions should address sensory processing issues to alleviate depressive symptoms (Serafini et al., 2017).

Childhood environment: Sensitive individuals who experienced troubled childhoods are more likely to have anxiety and depression as adults (Aron et al., 1997). Conversely, those with supportive and nurturing family environments may exhibit lower levels of negative affect and better overall mental health outcomes (Aron et al., 2012). The healthy family environment plays a crucial role in the mental health of highly sensitive individuals (Greven et al., 2019).

Neural correlation: Sensory Processing Sensitivity, particularly the Ease of Excitation (EOE) dimension, plays a critical role in moderating the impact of stress on depression. Individuals with high SPS, especially high EOE, are more vulnerable to developing depressive symptoms when they experience stress (Wu et al., 2020). Furthermore, individuals with high SPS show distinct neural activations, particularly in brain regions associated with empathy, self-other processing, awareness, and reward processing. Dysregulation in these areas can contribute to emotional instability and vulnerability to depression (Acevedo et al., 2018).

Genetic factors: Genetic studies indicate that variations in the s-allele of 5-HTTLPR particularly play a significant role in Sensory Processing Sensitivity. This genetic predisposition leads to greater emotional reactivity and sensitivity to environmental stimuli, contributing to both the potential for higher stress reactivity and the ability to benefit from positive experiences (Aron et al., 2012).

2.2 Diagnostic methods for depression

Three different aspects of diagnostic methods are identified in the documents: Self-Report Questionnaires, Clinical Interviews, and Biological and Genomic Methods. More detailed information is provided below:

Self-Report Questionnaires: 1. Depression, Anxiety, and Stress Scales (DASS-21) and the Japanese version of the Center for Epidemiologic Studies Depression Scale (CES-D) were used in studies to assess depression (Yano et al., 2019). 2. Beck Depression Inventory (BDI) was mentioned in multiple documents. One noted that this method has high sensitivity but lower specificity (Smith et al., 2013). 3. Patient Health Questionnaire (PHQ-9) was referenced (Wyller et al., 2017). One study evaluated this method as effective for case-finding but not validated for severity measurement (Smith et al., 2013). 4. Hospital Anxiety and Depression Scale (HADS) was assessed for moderate reliability, with significant variability in accuracy (Smith et al., 2013).

Clinical Interviews: 1. Structured Clinical Interview for DSM-IV-Axis I Disorders (SCID-I) was introduced for diagnosing psychiatric conditions (Smith et al., 2013). 2. Mini International Neuropsychiatric Interview (MINI) was shortly mentioned as a short, structured diagnostic interview (Smith et al., 2013).

Biological and Genomic Methods: 1.Genomic method is to Measures gene expression associated with depression and biological pathway biomarker panels to diagnose major depressive disorder (MDD) (Paquet et al,. 2022). 2. Dexamethasone Suppression Test (DST) was recorded as historically used to assess depression but has limitations in clinical performance and patient convenience. (Paquet et al,. 2022).3. Proteomic and Metabolomic Methods Analyzes protein and metabolic profiles to understand biochemical changes associated with depression (Pettersson et al., 2015).

2.3 Diagnostic methods for high sensory processing sensibility

Diagnosing Sensory Processing Sensitivity (SPS) involves identifying specific sensory processing challenges that significantly impact an individual's daily life activities, routines, and learning (Holm et al. 2019). However, there are limited methods available for diagnosing SPS. The Highly Sensitive Person Scale (HSPS) was mentioned in almost every document evaluating SPS. For children, the Highly Sensitive Child Scale (HSC) is used, which includes subscales for Ease of Excitation (EOE), Aesthetic Sensitivity (AES), and Low Sensory Threshold (LST) (Wu et al., 2020).

2.4 Treatment for depression

The treatment for depression was categorized as Non-Pharmacological Treatment and Pharmacological treatments. Many interventions were mentioned.

2.5 Non-Pharmacological Treatments:

Mindfulness and Physical Activity: mindfulness-based interventions include practices such as meditation and deep breathing exercises, which help individuals focus on the present moment and reduce symptoms of anxiety and depression (Serafini et al. 2017).

Physical activity can act as unisensory or multisensory stimulation, providing a source of central activation that positively impacts mood (Serafini et al., 2017).

Bottom-up Approach: Peripheral Stimulation: this method uses sensory activities and sensorimotor activities such as exercise to influence mood and depressive symptoms. The approach is based on the hypothesis that altering sensory inputs can modulate affective circuits in the brain involved in depression (Serafini et al., 2017).

Psychotherapy: Cognitive-Behavioral Therapy (CBT): CBT is used for individuals with MDD (Smith et al., 2013). It focuses on changing negative thought patterns and behaviors that contribute to depression (Pettersson, et al. 2015).

Interpersonal Therapy (IPT) and psychodynamic therapy were shortly mentioned. They can also be effective depending on the individual's needs and preferences (Pettersson, et al., 2015).

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2.6 Pharmacological Treatments

Selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), and tricyclic antidepressants (TCAs) are common use of antidepressant medications (Smith et al., 2013).

In cases where patients do not respond to standard treatments, other options such as Electroconvulsive Therapy (ECT), Transcranial Magnetic Stimulation (TMS), and emerging treatments like ketamine infusions and psychedelic-assisted therapy may be considered. These treatments are typically reserved for treatment-resistant depression due to their intensive nature and potential side effects (Pettersson et al, 2015).

A combination of medication and psychotherapy is often used to provide a more comprehensive treatment approach (Smith et al., 2013).

2.7 Treatment for high sensory processing sensibility

Cognitive-Behavioral Strategies: Individuals can learn to reframe their thoughts to increase their capacity to manage emotions. By altering perceptions and beliefs about one's emotional regulation abilities, individuals can significantly reduce feelings of helplessness and enhance emotional well-being (Brindle et al., 2015).

Mindfulness-Based Therapy: Mindfulness meditation can help individuals become more aware of their emotional experiences and diminish the tendency to react negatively to distressing stimuli (Brindle et al., 2015). By encouraging individuals to observe their emotions without judgment, individuals can foster greater acceptance of negative affective states (Brindle et al., 2015). Techniques such as Mindfulness-Based Cognitive Therapy (MBCT) helps reduce cognitive reactivity and improve emotional regulation (Wyller et al., 2017).

Emotion Regulation Training: This training involves teaching individual's specific techniques to manage their emotions, such as deep breathing, progressive muscle relaxation, and guided imagery. Those techniques help individuals with Sensory Processing Sensitivity (SPS) reduce their physiological arousal and emotional reactivity to sensory stimuli (Brindle et al., 2015).

Exposure Therapy: For individuals who avoid certain stimuli due to their high sensitivity, gradual exposure to overwhelming stimuli can help reduce their anxiety over time. This process builds up tolerance to sensory input that they previously found distressing (Brindle et al., 2015).

Acceptance and Commitment Therapy (ACT): ACT encourages individuals to always accept their sensory sensitivities and commit to actions that align with their values (Brindle et al., 2015). ACT helps individuals with high SPS manage their sensitivity and reduce depressive symptoms by being more accepting and proactive towards their experiences. (Wyller et al., 2017)

Support Groups: Support groups offer a sense of community and understanding. By sharing coping strategies and emotional regulation techniques within the group, individuals can reduce feelings of isolation and improve their emotional well-being (Brindle et al., 2015).

Psychoeducation: Educating individuals about SPS and its impact on their emotional and psychological functioning can empower them to manage their sensitivity more effectively and develop personalized strategies to cope with their sensitivity (Brindle et al. 2015).

Sensory Integration/Sensory Processing Treatment (SI/SP-T): SI/SP-T enhances sensory experiences to improve sensory integration and processing for individuals with low SPS. (Holm et al. 2019)

3. Discussion

Based on the review, emotional control plays an important role in the mental health of SPS individuals (Brindle et al., 2015). The ability to process and accept excess sensory inputs is necessary for SPS individuals to regulate their emotions and reduce the likelihood of experiencing hypo- and hypersensitivity, which can lead to depression (Serafini et al., 2017).

The capability of some individuals with Sensory Processing Sensitivity (SPS) to regulate their emotions can be influenced by both environmental and genetic factors. Genetic predisposition can potentially increase emotional reactivity and sensitivity to environmental stimuli (Aron et al., 2012). However, many SPS individuals are not aware of their emotional irregularity (Brindle et al., 2015), possibly due to a negative family environment (Aron et al., 1997).

One assumption made from this review is that children naturally gain experience in regulating emotions by observing family members' behavior in processing emotions and reacting appropriately to different sensory stimuli. In a negative family environment, children may only be exposed to negative emotional processing and reactions, learning from family members who themselves struggle to handle emotions properly, thus perpetuating a negative emotional atmosphere. This assumption requires further investigation to be validated.

Comparing the diagnostic methods of SPS and depression, depression diagnosis is well-studied and has various approaches, including self-report, expert review, and even genetic or biological detection. In contrast, SPS can only be evaluated by the Highly Sensitive Person Scale (HSPS),

with some variations for children (Wu et al., 2020). The differences in the volume of methods indicate that SPS is still under research. More diagnostic methods are expected to emerge as more findings in SPS are uncovered.

On the other hand, the current method makes SPS easily accessible to evaluate. If an individual is diagnosed with depression, a therapist does not have to consider and decide which type of SPS evaluation test to provide. They can simply administer the HSPS to determine if the individual also has SPS and consider this as a factor in treatment.

While outpatient treatment of depression has increased, pharmacotherapy remains the most common treatment, though its use has decreased over time (Hockenberry et al., 2019). However, the non-pharmacological treatments for depression are related to current SPS treatment. Mindfulness-based interventions and Cognitive-Behavioral Therapy (CBT) are both mentioned. Given that a combination of medication and psychotherapy is often used to provide a more comprehensive treatment approach (Smith et al., 2013), it is very possible to develop specific treatment methods for individuals with depression and SPS. Further study and clinical intervention should be conducted to bring more attention to depression in individuals with SPS.

4. Conclusion

The review supports the idea that Sensory Processing Sensitivity (SPS) should be given more consideration in clinical trials related to depression. However, when therapists treat mental health issues like depression, SPS is often not included in diagnostic frameworks (Protić et al., 2021). Although sensory processing is not typically included in current diagnostic criteria for depression, studies aimed at better understanding the relationship between SPS and depression are rare, and there is a need to integrate the findings obtained (Sanchez-SanSegundo et al., 2021).

In a clinical intervention context, more trials combining the diagnosis and treatment for depression and SPS should be practiced. For individuals with depression and SPS, guiding them to understand emotional management and accept extra sensory input could be more effective than solely relying on medication. More comparative studies on treatments for depression in individuals with SPS should be conducted to determine the most effective approaches.

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