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UDC 159.942.52-053.5

Review Article

Received: 13/03/2023

Accepted: 30/06/2023

## HIGH SENSITIVITY IN CHILDHOOD

**ABSTRACT:** This paper presents the existing literature on the development of highly sensitive children from birth to adolescence. The most important traits of highly sensitive children are described, as well as the results of the research on highly sensitive children. Namely, the scientific literature states that there are about 20% of highly sensitive people in the general population. For this reason, it is necessary for professionals (psychologists, psychotherapists, and psychiatrists), as well as parents and teachers, to become better acquainted with the basic characteristics of sensitivity. It often happens that highly sensitive children are diagnosed with a disorder such as autism or attention deficit hyperactivity disorder, or are assessed to be less intelligent simply because the experts are not familiar with the basic characteristics of highly sensitive people. Even though the research on sensitivity has increased worldwide over the last twenty years, this is not the case in our region, and experts working in clinical practice in Serbia are largely unfamiliar with sensitivity and its basic characteristics. However, experts, parents and teachers can adequately support highly sensitive children only if they understand the differences between highly sensitive and non-highly sensitive individuals, the basic characteristics of sensitivity, and the various factors that influence the physical and mental health of highly sensitive children.

**KEYWORDS:** *Childhood, sensitivity, behavioral inhibition system, depth of processing*

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## 1. Introduction

Mainstream scientific literature states that highly sensitive people represent a minority part of the population with a more sensitive nervous system compared to the majority, non-highly sensitive part of the population (Aron & Aron, 1997; Gearhart & Bodie, 2012; Greven et al., 2019; Jagiellowicz et al., 2016). The reason for this assumption lies in the results of a number of research showing that highly sensitive people have certain brain areas more active than non-highly sensitive people (Acevedo et al., 2021). For example, some studies have shown that highly sensitive subjects use more parts of the brain associated with deeper information processing (Acevedo et al., 2021; Jagiellowicz et al., 2011). In addition to deeper processing of information, other characteristics of highly sensitive people are: higher emotional reactivity, easily reaching a state of overwhelm and sensitivity to the subtle.

The depth of information processing represents, as the name itself suggests, the tendency to process information more deeply. Highly sensitive people process everything more, connecting and comparing what they observe with their past experiences in similar situations. Many researchers believe that the depth of information processing is the main trait of highly sensitive people (Aron et al., 2005; Liss et al., 2005). Being deeply reflective, it is more likely that highly sensitive people will get physically and mentally tired sooner, subsequently reaching a state of overwhelm more easily. Higher emotional reactivity refers to highly sensitive people having more intense emotional reactions to positive and negative life experiences, as well as to more intense reactions to other people's emotions. Sensitivity to the subtle refers to all those small things noticed by highly sensitive people, but missed by others (Aron, 2011; Baryla-Matejczuk et al., 2020; Boterberg & Warreyn, 2016).

Research on highly sensitive children dates back to the period before the concept of high sensitivity and the basic characteristics of highly sensitive people were defined (Boyce et al., 1996; Gunnar, 1994; Nachmias et al., 1996). Namely, researchers noticed in the past that there was a certain group of children who differed from their peers in terms of their basic traits. The terms used at the time of conducting these studies were higher reactivity, shyness or higher negative emotionality, while

scientists only later realized that what had actually been studied was the heightened sensitivity of a specific group of children (Jagiellowicz et al., 2020). Upon defining the concept of high sensitivity, research conducted specifically on a particular group of highly sensitive children began (Aron & Aron, 1997). Additionally, a large number of characteristics about the development of highly sensitive children, as well as about the influence of the family on highly sensitive children, are stated by Elaine Aron (Elaine N. Aron). Her conclusions, written in the book “Sensitive Child”, came from therapeutic work with highly sensitive persons and children, as well as from consultations with developmental psychologists (Aron, 2002; Aron, 2011).

## **2. Highly sensitive babies and preschool-age children**

In order to understand the characteristics of highly sensitive children through different stages of their development, it is necessary to understand the concepts related to the systems of behavioral activation and behavioral inhibition (Aron, 2002). Subsequently, according to Gray’s reinforcement sensitivity theory, there are three basic emotional systems. The *fight-or-flight* system regulates avoidance and defense against aggressive behavior in response to unconditional signals of punishment. The behavioral activation system is responsible for controlling active access and behavior which represents a reaction to reward signals. The behavioral inhibition system regulates passive avoidance of punishment signals and incorporates frustration due to absence of reward (Gray, 1991; Gray & McNaughton, 2000). Although every individual is equipped with this behavioral inhibition system, the system is thought to be very active or strong in highly sensitive people (Aron & Aron, 1997; Smolewska et al., 2006). The behavioral inhibition system is also known as the *pause-to-check system* because it affects both the perception of the situation a person is approaching and the comparison of that situation with other similar situations from the past. Because of this, inhibition occurs only for a moment, unless a likely similar situation in the past was not threatening. However, a few bad experiences in approaching new situations can turn a *pause-to-check system* into a *pause-and-do-nothing system*. This reaction can develop as early as at

the age of six months in highly sensitive babies by slowly developing the strategy *The best way to avoid bad things would seem to be avoiding everything*. For example, a baby wants to try something, but is at the same time afraid of the new situation (Aron, 2002). For this reason, it is very important at this age that parents help their child in the regulation of its own emotions, i.e., whether to be afraid of unknown situations or how to approach them. The assumption is that overly protective parents can actually encourage the development of new life situations avoidance strategy in their children. This way, they send their child a message that it should not approach new life situations on its own, but wait for their assistance instead.

Apart from parental support and care, negative stimulation itself can have a particularly strong effect on highly sensitive babies. If a baby is constantly exposed to certain stressors, such as parental quarrels, there may be an increase in negative emotionality in highly sensitive babies as soon as at the age of nine months (Aron, 2002). However, if highly sensitive babies are nourished by caring and responsive parents, their level of negative emotionality will not increase. This, in addition to adequate parental support and care, is also explained by a decreased presence of increased stimulation in a child's life. Namely at this age, all babies attract the attention of their guardians to play with them more. However, unlike other babies, highly sensitive babies easily become overwhelmed, so it is necessary for parents to take this into account (Aron, 2011; Baryla-Matejczuk et al., 2020). Therefore, finding the optimal level of stimulation for highly sensitive children is extremely important.

Of course, the above also applies to non-highly sensitive babies, but the difference is precisely in intensity. Highly sensitive babies will need fewer negative life experiences to slowly increase their negative emotionality by the age of one (Aron, 2002). Differences between highly sensitive and non-highly sensitive babies were also demonstrated in one experiment. Namely, the greater excitement of babies was investigated by measuring the amount of cortisol in the blood after a frightening situation (Gunnar, 1994). Nine-month-old babies with stronger and weaker systems of behavioral inhibition (highly sensitive and non-highly sensitive) were identified and they were separated from their mothers for half an hour. Half of the highly sensitive and half of the non-highly

sensitive babies were left with an attentive babysitter who responded adequately to all the child's needs, while the other half of the highly sensitive and the other half of the non-highly sensitive babies were left with a babysitter who was inattentive and did not respond unless a child cried really hard. The obtained results showed that only highly sensitive babies with a careless babysitter had more cortisol in their saliva (Gunnar, 1994). Based on the results of this study, it appeared that highly sensitive infants with attentive babysitters, as well as both groups of non-highly sensitive infants with attentive and inattentive babysitters, felt that they had the resources to deal with this situation and that there was no need to create a prolonged stress response. (Gunnar, 1994).

The experiment showed how much impact (in)adequate care can have on highly sensitive children. The influence of caretakers on highly sensitive children was also demonstrated in an experiment in which eighteen-month-old children were exposed to unfamiliar situations while they were with their mothers (Nachmias et al., 1996). Before the experiment commenced, both children with secure and insecure affective attachment to their mothers were identified using the unfamiliar situation method. As a first reaction, highly sensitive children had strong heart palpitations and an increased level of adrenaline. In this same research, non-highly sensitive children entered the situation without taking a break. However, highly sensitive children with a secure affective attachment to their mothers only paused to check out the unfamiliar situation. Having assessed the situation as safe, they would start to explore it, just like non-highly sensitive children would. In contrast, highly sensitive children with insecure attachment to their mothers did become fearful, as indicated by the increased blood cortisol levels (Nachmias et al., 1996). It could be concluded from these studies that, if faced with new situations every day, highly sensitive children with an insecure attachment to their caretakers will have a chronically higher cortisol level. An increased level of cortisol can debilitate the immune system and cause sleep problems (Aron, 2002).

In a later study (Lionetti et al., 2019), an assessment was made to establish whether children more influenced by parental behavior and upbringing do exist. In this research, the difference between children aged three to six years was examined in relation to their different sensitivity

to parental care (Lionetti et al., 2019). The parental care was evaluated by the Parenting Styles and Dimensions Questionnaire (Robinson et al., 2001), while parents assessed their children's sensitivity using the Children's Sensitivity Assessment Questionnaire (Lionetti et al., 2019). The sample consisted of children aged three to six years and the results of this research showed that there really are differences in children's sensitivity. Namely, one group of children was very sensitive to both bad and good parental care, while the other group of children was less sensitive. Highly sensitive children who had a lower degree of adequate parental care had more problems in internalized behavior (such as anxiety and depression) and externalized behavior (such as aggression) compared to non-highly sensitive children with the same degree of parental care quality (Lionetti et al., 2019). Also, in another study, it was shown that highly sensitive children aged three to five years residing in a more stressful family and school environment were at a higher risk of becoming ill or being injured compared to their peers. However, in this study, a positive influence of the environment on the health of highly sensitive children was recorded. Namely, highly sensitive children residing in a less stressful family and school environment were at a lower risk of injury or illness than their peers (Boyce et al., 1996).

Based on many research conducted, it can be observed that good parenting and secure attachment to primary caretakers greatly affect the mental and physical health, but also the behavior of highly sensitive children so that they do not develop internalized and externalized problems, nor withdrawing from the outside world. So, in order for highly sensitive children to feel safe to explore new situations during their first few years of life, they need to first feel safe with their caretakers. Although true for all children, this is especially true for highly sensitive children because their behavioral inhibition system is stronger (Aron, 2002).

### **3. Highly sensitive primary-school-age children**

Precisely due to how easy it is to reach a state of overwhelm, which is one of the basic characteristics of highly sensitive individuals, differences in the behavior of highly sensitive and non-highly sensitive children can primarily be observed at primary-school age (Aron, 2002). When

a child is aware of everything that is happening in and around, while deeply experiencing life situations as well as the behavior of other people, a child becomes mentally and physically exhausted more easily than other children. So, reaching a state of overwhelm easily is a consequence of deeper and more thorough processing of information. This characteristic, due to its consequences, is often very difficult for the child, as well as for parents or caretakers (Baryla-Matejczuk et al., 2020).

For instance, situations that are attractive to a child, such as travel or playrooms, can also be a source of overstimulation. The amount and intensity of stimuli in such situations can hinder a child's daily functioning. This means that highly sensitive children are disturbed by things which other children do not notice (Aron, 2002). It is exactly because of reaching a state of overwhelm easily due to external stimulation that high sensitivity can resemble autism (Liss et al., 2008), that is, the reactions of highly sensitive and autistic children can be similar when highly sensitive children are in a state of overwhelm. When in this state, both groups of children may react with increased irritability or withdrawal from other people (Liss et al., 2008). However, highly sensitive children in a more familiar environment have good social skills. In general, there is no overlap between the criteria for high sensitivity and the criteria for autism (Aron, 2011). In addition to autism, when a highly sensitive child is in a state of overwhelm, its behavior can resemble the behavior of a child with attention deficit hyperactivity disorder (ADHD). For example, they have trouble paying attention, they do not listen to other people talking, they do not finish tasks, and they forget things. However, as with autism, there is no overlap between criteria for high sensitivity and criteria for attention deficit hyperactivity disorder (Aron, 2011). It can also happen that highly sensitive children be evaluated by teachers as less intelligent because of worse test results they sometimes achieve due to excessive excitement. This is because of their higher emotional reactivity, which is yet another basic characteristic of high sensitivity. However, when they are not disturbed, this assessment is deemed incorrect (Aron, 2011).

For all these reasons, it is very important for parents to teach their child how to deal with a state of anxiety and overwhelm. Therefore, parents should help their primary-school-age child to develop an adequate

strategy that will help should the child feel it is becoming anxious or overwhelmed due to overstimulation. This is very important, especially in the case of entering a state of overwhelm easily, because this characteristic can make it difficult for the child to socialize with peers and fit into the collective. However, in addition to the fact that parents should help the child develop adequate coping strategies, the family itself can sometimes be a source of excessive stimulation. If parents do not recognize the child's need for a lower level of stimulation, they can lead the child to a state of overwhelm by, for instance, engaging it in a large number of extracurricular activities, insisting on constant socializing with its peers and alike (Aron, 2002; Baryla- Matejczuk et al., 2020).

The negative influence of family on a highly sensitive child has also been observed in some research, showing that highly sensitive adults will have higher neuroticism (Aron & Aron, 1997), be shyer (Aron et al., 2005), exhibit higher depression (Liss et al., 2005) and be less satisfied with their lives (Booth et al., 2015) if they have a more stressful family environment and a lower level of adequate parental care during childhood. All this has not been observed or it has been observed in a lesser extent in non-highly sensitive subjects with an identical environment during childhood. However, many researchers note that, in addition to negative aspects, positive aspects of the environment have a greater impact on highly sensitive children compared to the non-highly sensitive (Greven et al., 2019; Pluess et al., 2018). For example, a study conducted in Great Britain showed a positive influence of the environment on highly sensitive children. Namely, highly sensitive girls benefited more from psychological interventions implemented at school, which were aimed at developing children's socio-emotional skills. Although there were no significant differences in scores on the depression scale between highly sensitive and non-highly sensitive girls before the start of the program, highly sensitive girls had significantly lower scores on the depression scale upon finishing the program. The authors concluded that this had to do with the deeper processing of information by highly sensitive girls, i.e., highly sensitive respondents processed the content of these interventions more deeply, which led to better internalization and application of acquired cognitive-behavioral coping strategies (Pluess & Boniwell, 2015). The results of these studies show that highly sensitive



children are more influenced by both aversive and supportive aspects of the environment compared to non-highly sensitive children (Aron & Aron, 1997; Pluess & Boniwell, 2015).

#### **4. Conclusion**

In the last twenty years, research on highly sensitive children have been increasingly numerous in the world, but they are still at the beginning, which indicates the fact that many aspects of highly sensitive children have yet to be sufficiently studied. This especially applies to research on highly sensitive babies and preschoolers. Most of these attempts of research were experimental studies conducted before the concept of high sensitivity was even defined, whereby scientists only later realized that it was highly sensitive children that they had actually been studying. Therefore, it is necessary to conduct more research on highly sensitive children of a younger age.

A higher number of research on older highly sensitive children were focused exclusively on the influence of a family environment on their mental and physical health. However, there is no research on what kind of upbringing and family dynamics would suit highly sensitive children the most, as well as whether parenting can have an effect on the additional increase in sensitivity of a child (Liss et al., 2005). Although the literature states that the positive aspects of the environment have a greater impact on highly sensitive children, they have been studied to a lesser extent compared to the influence of negative aspects of the environment. Finally, no longitudinal study has been conducted on highly sensitive people, and for this reason, many characteristics of highly sensitive people, through their different stages of development, are still unknown.

Regardless of the shortcomings of previous research on highly sensitive children, based on the results of previously conducted research and on the basis of the observations of psychologists, scientists have concluded that high sensitivity represents a dimension of temperament, and that, accordingly, highly sensitive people and children do have certain characteristics that do not relate to the non-highly sensitive part of the population (Aron & Aron, 1997; Jagiellowicz et al., 2016; Licht et al.,

2020; Liss et al., 2005). These characteristics refer to their greater sensitivity to positive and negative aspects of the environment, to greater caution when approaching new life situations, but also to the four basic characteristics of high sensitivity, that is, deeper processing of information, higher emotional reactivity, easily reaching a state of overwhelm and sensitivity to the subtle. The findings of these studies are important because they indicate to parents, teachers and experts the basic characteristics of highly sensitive children.

Parents should be aware of the fact that a good environment is crucial for highly sensitive children. This does not mean that parents themselves need to be highly sensitive in order for a highly sensitive child to be well adapted, it rather means that a family environment should be supportive of the child and its needs. As previously mentioned, it is important for parents to support their highly sensitive child and encourage it to approach new life situations when safe to do so. Namely, highly sensitive children may decide not to try something due to greater caution and thus may miss out on many significant life experiences. Due to easily entering a state of overwhelm, it is also important that parents manage their highly sensitive child's resting periods, that is, to have a part of the day without great stimulation. If a child has a lot of obligations during the day, it is important that parents encourage it to take short breaks more often. If a highly sensitive child becomes overwhelmed, or if it feels anxious, it is important for parents to understand what has led to such a state and how to prevent it from happening in the future (Aron, 2002).

It is also important for teachers to be familiar with the basic characteristics of highly sensitive children so that they do not misjudge the child as being less intelligent due to worse test results caused by excessive excitement, or being rude due to easily becoming overwhelmed or being more emotional. Also, when a highly sensitive child starts kindergarten, school, or moves to a new class, it will require more time to adapt to the new environment than other children. For this reason, it is important that teachers do not rush the child through this process, but rather to allow it to adapt at its own pace. Teachers should also take into account that highly sensitive children become overwhelmed or agitated more easily than other children. This is less likely to happen if teach-

ers do not give students too many tasks to complete in a short period of time, if students have enough rest and if teachers are not too strict. Teachers should also find an optimal level in encouraging the highly sensitive child to participate in class discussion (Aron, 2002). Given that highly sensitive children are a minority compared to their peers, they may be significantly less popular, but also accepted (Aron 2002; Chen et al., 1992). For this reason, if a child has a problem fitting into peer groups or adapting to school life, it is important that teachers give it appropriate support. This will be possible only if they are familiar with the concept of high sensitivity and the basic characteristics of highly sensitive people.

It is extremely important that psychologists, psychotherapists and psychiatrists are familiar with the basic characteristics of high sensitivity so that they do not misdiagnose a child and provide it with appropriate support. Actually, due to the behavior of highly sensitive people when they are in a state of overwhelm or when they are upset, high sensitivity can resemble a disorder (Aron, 2011). Behavior of highly sensitive children in a state of overwhelm or anxiety is most often misinterpreted as that of autistic children or children with attention deficit hyperactivity disorder. It is precisely in the situation when parents take a highly sensitive child to a specialist that it will most often be upset. For this reason, if experts are not familiar with the basic characteristics of high sensitivity, they may connote a child less intelligent, shy, having anxiety problems or, in more extreme cases, diagnose a highly sensitive child with autism or attention deficit hyperactivity disorder.

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