

Examining the Relationship between HSP and Personality: A Correlational Approach

Understanding the Common Personality Characteristics Exhibited by Individuals with High Sensitivity

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Abstract:-The aim of the study was to study and determine the correlation between Highly Sensitive People (HSP) and Personality traits. HSP and Sensory Processing Sensitivity (SPS) are used interchangeably, both however indicates the same personality traits. SPS defined as a deeper sensitivity to physical, emotional or social stimuli. Two scales, the HSP scale developed by Aron and Aron and the NEO - FFI scale developed by Costa and McCrae were used to conduct the study. The research was conducted on male and female subjects of age 18 years and above. A questionnaire was circulated through google forms and data was collected from 291 subjects. The data collected was analysed using JASP descriptive analysis, t - test and correlation. The results show a significant difference between males and females with respect to HSP. No significant correlation was found between the big five personality traits and prevalence of HSP.

Keywords:- Highly Sensitive People, Personality, Sensory Processing Sensitivity, Correlation, Traits.

I. INTRODUCTION

Human behaviour is a very complex phenomenon and has been the nucleus of research of many psychologists, ideologists and researchers. Psychologists believe that human behaviour is a function of various phenomena acting together that determines the behaviour of individuals. One determinant of human behaviour is 'Personality'. The concept of personality is immensely wide ranging, multi – dimensional, comprehensive and equally interesting. Personality itself is the basis of so many different phenomena in psychology and other related fields that its understanding becomes crucial. Our focus in this study will be towards personality and its relation to sensitivity among young adults.

A. Introduction to Personality

Eysenck (1971) defined personality as a more or less stable and enduring organization of a person's character, temperament, intellect and physique, which determine his/her unique adjustment to the environment. This definition focuses on a stable and set pattern of behaviour that an individual employs to efficiently adapt to the surroundings. According to Cattell (1970), personality is that which permits

a prediction of what a person will do in a given situation. Cattell defined personality as a parameter to understand how a person will behave in certain situations and act or react to different stimuli. Personality is defined as a stable set of characteristics and tendencies that determine commonalities and differences in people's behaviour. (James, 1994) James' definition of personality tells us how every individual has a unique personality which makes them different from all others, as well as focuses on some common aspects of people's personality. For our use and purpose in the study, we will be using the definition of personality as the relatively stable and enduring characteristics that determine the thoughts, feelings and behavior of an individual.

A personality trait is not a single or specific behavior but just a pattern of behaviours which are related and carried by the person who is showing the consistency of such patterns from situation to situation.(Funder, 1991) These patterns can be one or few behaviours, affects, cognitions, desires or all of them. Individual differences that are visible due to personality can be understood by referring to "why mostly one behaves in this way but not the other ? Personality traits are also associated with this and related but can further be explained in more advanced terms.

The early research on Personality which mainly aimed at description and explanation began with identification of the personality terminology in the lexical language. The later interest was shifted to more applied areas like measurement of personality traits and prediction of future behavior. Personality traits are expressed through the person's behavior (McCrae and Costa,1995) There have been several efforts by researchers, psychologists to clearly define and list personality traits. Personality traits deliberate the characteristic patterns of thoughts, behaviours and feelings of individuals. Personality traits imply stability over time and place. For instance, if an individual scores high on the trait of introversion, then he/she is expected to portray the behaviour consistently. There have been various attempts to group people on the basis of the type of personality they have. An example is the famous division of people into Type A, B, C, D personalities, each having their own specific characteristic. This concept was given by Friedman and Rosenman (1976).

In the efforts to list all the personality traits, various studies have shown different results. For example, Gordon Allport (1936) concluded that there are 4000+ personality traits, Cattell (1949) concluded his research with 16 personality factors, Eysenck (1947) gave the 3 factor theory. Out of the studies attempting to recognise personality traits, one of the most talked about and famous is the Big Five Personality Traits.

B. Big Five Personality Traits and NEO - FFI

The theory of Big Five Personality Traits was introduced by D. W. Fiske in 1949 and later developed and modified by researchers like Norman (1967), Smith (1967), Goldberg (1981), and McCrae and Costa (1987). The Big Five Personality Traits Model describes five broad personality traits. They are Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These can be easily remembered using the acronym OCEAN. Each of the personality traits represent a continuum between the extremes of the range. It is presumed that people lie in the middle of the range in reality.

Openness to experience is the level of curiosity, imagination, eagerness and creativity. People high on this trait usually are explorative and open to new ideas and innovations. Conscientiousness is the level of self - control in planning and organization. This trait is related to thoughtfulness, goal direction, organization, and mindfulness. People high on this trait are organized, systematic, calm and goal oriented. Extraversion is the degree of sociability, positive emotionality and general activity. Characterised by talkativeness and sociability. Agreeableness emphasises trust, altruism and kindness. People high on this trait are sympathetic and have co – operative tendencies. The trait of neuroticism is characterised by the tendency to experience negative emotions and psychological distress in response to stressors. Related to emotional instability, mood swings, stress, and anxiety. Costa and McCrae (1989, 1992) developed the NEO–Five Factor Inventory (NEO–FFI) with an aim to access the five domains of the Big Five Model of Personality Traits. The Big Five traits are a universal language of personality, common components, and universal descriptions of personality across cultures and environments (Cheung et al. 1996; Chamorro - Premuzic and Furnham 2010).

A study carried out to understand the genetic and environmental influence on traits studied 123 pairs of identical twins and 127 pairs of fraternal twins. The research findings suggested the heritability of traits to be 61% for openness, 44% for conscientiousness, 53% for extraversion, 41% for agreeableness, and 41% for neuroticism. The results of many longitudinal studies say that these traits tend to be relatively stable over the course of adulthood and vary little due to life-altering events. It was also found that age maturation impacts the traits, this implies that as people grow older, they tend to be less extroverted, neurotic and open to experience. (K. L. Jang et al. J. Pers. 1996 Sep.)

C. Highly Sensitive People (HSP) - Understanding the Realms of Sensitivity

With respect to sensitivity, many scientific fields have contributed towards it, other than psychology. Highly Sensitive Person (HSP), is a term introduced by Elaine Aron. As per Aron's theory, HSP is the fragment of the population who are found to be high on an innate personality trait, which is known as Sensory Processing Sensitivity (SPS) (Aron, 2012). It involves expressing extortionate emotional sensitivity to any surrounding stimuli (environmental or social stimuli), behavior, and physiological as well as cognitive both positive and negative reactions then others (Aron et al, 2012). It's been found that sensitive individuals are overstimulated in almost all situations easily and also their relationships with others affect their mood, portraying empathetic reactions (Acevedo, 2014). Highly sensitive individuals are furthermore prone to heed subtle stimuli in their environment to respond to a low threshold of stimuli (Aron, 2012). To understand the personality construction of SPS, the Highly Sensitive Person Scale was developed as well as validated in the studies. Which contains 27 items scale, aiming to measure multiple aspects of SPS (Aron E. N., 1997). Greater emotional responsiveness to both positive and negative facilities' depth of processing is probably the cause of differential susceptibility.

A similar functional trait – flexibility or responsiveness has been explored and observed in over a hundred non-human species, including Fruit flies, Pumpkinseed sunfish, and Primates (Wilson, 1993). Along with it, also comes Negative Frequency-Dependent, which means that there's always going to be a minority (in humans 15-30%) (Wolf, 2008). Development of the new HSP scale was made by Smolewska, McCabe and Woody who stated that HSP was accounted by three different factors, namely- Aesthetic Sensitivity (AES: awareness of the surrounding), Low Sensory Threshold (LST: vexatious sensory arousal) and Ease of Excitation (EOE: overwhelmed by external and internal demands) (Smolewska K. A., 2006). EOE and LST correlate with negative consequences such as anxiety, depression, and stress and the AES bring positive outcomes and emotional response to the stimuli (Greven C.U., 2019).

Humans with high SPS (or HSP) are likely to show high awareness and attention to stimuli around them. This supports a tendency or a way to process stimuli more keenly and learn from the information received from the environment, which the individual further applies to future situations. Contrary, those who are low in SPS pay less attention to subtle stimuli are less emotionally reactive and with fewer references to past experiences (Aron E. N., 1997). SPS and personality show a correlation mainly with Neuroticism, Introversion and Openness. Although the personality trait of introversion shows a resemblance to SPS, studies by (Aron E. N., 1997) demonstrate that not all highly sensitive people display the profile of being socially withdrawn.

A neurodivergent person who is considered to have heightened or more profound central nervous system sensitivity to physical, emotional, or social stimuli is referred to as a highly sensitive person (HSP). Often misinterpreted as a psychological disorder, personality research had identified that it's not a disorder or a condition, but rather a personality trait known as sensory-processing sensitivity (SPS) (Dr Juli Fraga, 2019) Dr Elaine A (1996), who coined the term HSP, outlined that HSP is not a personality flaw or a syndrome, but rather a collection of characteristics that result from having a sensitive system. Commonly, sensory processing sensitivity (SPS) is characterised by a propensity for deep and complex processing of sensory information, easy over-arousal from sensory input (such as strong smells and tastes, sounds, or temperatures), strong emotional reactivity and empathy, and increased awareness of subtleties in the environment (Aron and Aron, 1997).

A highly sensitive person is often negatively attributed as “too sensitive” or someone who “takes everything to the heart”. And which basically infers that a highly sensitive person is usually highly flawed. But contrary to that, it's a personality trait that brings challenges and strength. (Elena H, 2016) Professor of medicine Wolfgang Klages from Germany asserted that people who are sensitive and very sensitive are “biologically anchored” and that their stimulus threshold is significantly lower (Klages Wolfgang, 1978) Though HSP is not considered a disorder or a syndrome, it can often be mistaken for other mental health disorders, it's crucial to keep in mind that high sensitivity can coexist with other mental health disorders. For example, having ADHD or SPD and simultaneously being an HSP are both possible diagnoses. (Dr Elizabeth S, 2022) During the same time period when Dr Elaine A coined the term HSP, other major and groundbreaking research in the same general domain of sensitivity was published. One was about “Differential Susceptibility” by Jay Belsky. Also, “Biological Sensitivity to Context” (BSC) by Tom Boyce and Bruce Ellis. The common denominator between all these studies was that some people are particularly deeply affected by what they encounter. In more recent times, a more comprehensive approach is undertaken to study Highly Sensitive Persons, which integrates Dr Elaine's HSP, Jay Belsky's DS, and Tom Boyce's BSC, in a framework called Environmental Sensitivity, different ways to describe this framework include “orchids and dandelions” and “highly sensitive person” (HSP). (Prof. Michael Plues 2021) Three typical personality traits have been linked in research to extremely sensitive people. Increased neuroticism, openness to new experiences, and decreased extroversion are these personality traits. Someone who exhibits neuroticism tends to have bad feelings. These are sad, angry, and anxious emotions. These characteristics are also present in highly sensitive individuals. This is because their thoughts or emotions, as well as the environment around them, can easily overwhelm them. Being open to new experiences indicates that a person is generally interested in novel concepts or unusual or novel items. Due to their propensity for experiencing the world in a very dynamic manner and appreciating the variety of life experiences, highly sensitive individuals may be more likely to exhibit this trait. Outgoing behavior and the wish to be around other

people are common definitions of extroversion. Introverts and self-reflectors are more prevalent traits in highly sensitive people. (Dr.Linnea Passaler 2023)

Strong positive and negative emotional reactions, in-depth cognitive processing of information, and empathic conduct are all examples of sensory processing sensitivity (SPS), a heritable personality trait that includes sensitivity to a variety of stimuli. There are two reported studies. In Study 1, it was examined how the Highly Sensitive Person scale (HSP) is composed of factors and how gender affects HSP. In Study 2, the Big Five personality features of two HSP groups were compared. In Study 1, a sample of individuals, predominantly college students, was selected (total N = 1096; N males = 548, N women = 548). In Study 2, the Big Five personality features of two HSP groups were compared. In Study 1, a sample of individuals, predominantly college students, was selected (total N = 1096; N males = 548, N women = 548). Study 2 used a sample with two HSP levels, High (N = 164) and Low (N = 164), that were also gender matched (82 males and 82 women in each group, for a total of 328 participants). In the two samples, there were no age disparities between the genders. A three-component correlation was found in Study

1's findings, with the first factor reflecting childhood shyness, easy elation, negative emotional reactivity, frustration, and excitability. Low sensory threshold and sensory pain made up factor 2. Intensity of aesthetic emotions, attention to environmental details, and socioemotional sensitivity were all represented by factor 3. Women scored higher on all HSP scales than men did, even after controlling for personality factors. Gender differences were discovered. According to Study 2, people who are very sensitive have a different personality feature profile than people who are lowly sensitive. They scored lower on conscientiousness and higher on neuroticism, agreeableness, and openness. There were no extraversion differences, i.e., the high sensitives did not exhibit any tendency towards introversion. (Hilde Visnes Trå, et al, 2022)

Inter-individual differences in sensitivity to both positive and negative surroundings are described by the feature known as sensory processing sensitivity (SPS), which is widespread, heritable, and evolutionarily conserved. Despite societal interest in SPS, scientific understanding of the topic is still lacking. Here, we critically examine the relationships between SPS and other theories, the measurement of SPS, the question of whether SPS is a continuous or categorical trait, its relationship to other temperament and personality traits, the underlying aetiology and neurobiological mechanisms, and relations to both typical and atypical development, including mental and sensory disorders. We established a research agenda for the future to encourage the discipline, drawing on the writers' varied areas of expertise. As a result of stressful circumstances, SPS raises the risk for stress-related problems, but it also maximises the benefits of supportive and happy experiences. In order to distinguish SPS from other features, the field needs more accurate and unbiased assessments of SPS as well as a deeper understanding of its mechanisms.

Future studies should focus on preventing the negative consequences of SPS and maximising its good potential to enhance wellbeing and mental health. (Corina U. Greven, et al, 2019)

D. HSP as a Personality Trait

Different individuals possessing various different combinations of behavioural and psychological traits are classified into different personality types. Individuals belonging to different personality types portray very different reactions to a seemingly similar situation as their affective processing is unique according to their genetic predispositions and environmental influences. HSP is also characterised as a personality feature or disposition (Chunhui Chen, et al., 2011) as HSPs are wired in a way to process information more intensely and deeply which connects on an emotionally significant level. This tendency is noticed since their childhood. These tendencies can have both advantages and disadvantages. As individuals with this personality type are believed to be more negatively affected by violence, tension, or overwhelming feelings than other people. As a result, they might work hard to stay out of circumstances where such things are likely to happen.

High sensitivity is sometimes associated with higher levels of creativity, better interpersonal relationships, and a stronger appreciation for beauty. It is possible to take offence too easily from those who are genuinely trying to be nice or who mean no harm. Additionally, it is possible to overreact to every day tensions or relationship problems, especially if you respond emotionally violently. It is important to clarify that it is not a diagnosis, it does not require any treatment. But being an HSP doesn't necessarily imply one makes up bad intentions when none exist. Moreover, one can perceive them more clearly. Or, one can be more negatively impacted than others, which is not necessarily a sign of weakness

E. DOES - Conceptual Framework of HSP

People that are very sensitive have deeper perceptions, thoughts, and emotions. Elaine Aron uses the acronym DOES too describe HSPs. (Aron, 2000). The four aspects of DOES are:

➤ *Depth of Processing:*

Highly perceptive brains take in more information, notice it more, and link it more. Because they can make connections that other people don't, it enables HSPs to be much more creative and comprehensive when working on a project. Whether they are aware of it or not, they nevertheless do it. HSPs are intuitive people. (Highly Sensitive Society).

➤ *Overstimulation*

HSPs are more susceptible to stress caused by loudness, disorderly environments, deadlines, or group work. There are High Sensation Seekers that are also HSPs. These individuals seek out interesting activities, engage in sports that provide intense competition, or worry about FOMO (fear of missing out) because they require greater stimulation than the majority of HSPs (Jagiellowicz et al., 2011). However, they are unable to tolerate the additional stimulation for a long

time, so they alternate between looking for excitement and trying to recuperate from it. (Friederike Gerstenberg).

➤ *Emotional Reactivity or Empathy:*

When highly sensitive individuals encounter images of their loved ones or even just emotionally charged images in general, the empathic regions of their brains are more active than those of less sensitive individuals (Naumann et al., 2020). HSPs in general have an increased level of reactions to both positive and negative circumstances.

➤ *Sensing the Subtle:*

Individuals are more perceptive of the things they hear, taste, and touch. (Jayne Leonard, 2021). Therefore, whereas a less sensitive individual wouldn't notice, they might realise that their food has less salt in it today than it did yesterday.

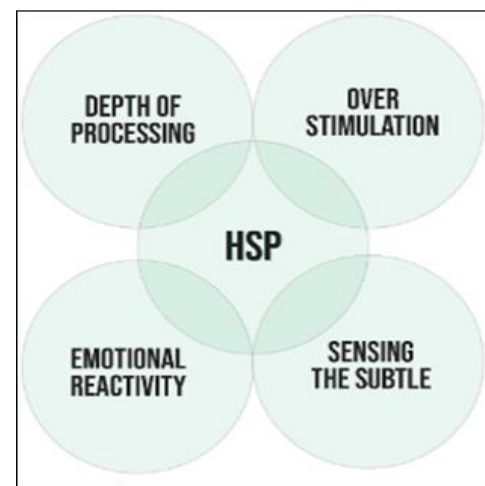


Fig 1 The Conceptual Framework of HSP

Figure 1 shows the conceptual framework for HSP. Although they all share a sensitivity to something, each highly sensitive person is unique. (Acevedo et al. 2014) Some people are more empathic than others, some are more sensitive to strong smells, and still, others may not be as sensitive to these things but can be profoundly affected by art forms like music or painting.

The Highly Sensitive Person Scale measures the following three traits, according to a scientific study (Smolewska et al., 2006): Low Sensory Threshold, Aesthetic Sensitivity, and Ease of Excitation (LST). EOE stands for emotional overexertion from both internal and external demands. AES, or aesthetic sensitivity, denotes aesthetic consciousness. Unpleasant sensory reactivity to external stimuli is referred to as a low sensory threshold (LST).

F. HSP and Environmental Conditions

An individual's behavior is affected by a variety of factors in his/her surroundings. Some environmental conditions that could cause discomfort to an individual could be: (Jenny Walters, 2021), being exposed to very bright lights for a prolonged period of time, being subject to loud noises for a stretch of time, being in a crowded place, strong lingering smells of perfumes, sometimes the mood and energy of the individuals with them could have an effect on the individual's mood, any sudden or significant change

causing an unusual amount of stress, movies that are too violent or disturbing, feeling overwhelmed after some time while spending time with a group of people, some medications can increase certain sensitivities in an individual, caffeine intake can also lead to certain sensitivities being heightened, being overwhelmed by tasks could be due to their tendency to achieve perfectionism and avoid making errors, lastly, conflicts can easily cause stress for HSPs.

Many HSPs design their daily life in a way that could cause a minimum amount of stress or overload of senses from the environment. Sometimes this happens unconsciously but other times it becomes necessary to make some changes in the immediate environment to suit the requirements. They are sensitive to details around them that others might not notice, which could prove to be a favourable or an unfavourable trait at times. HSPs are wired in a way to process information more intensely and deeply which connects on an emotionally significant level (*Grant Benham, 2006*).

G. Life Problems Associated with HSP

Highly Sensitive Person thought is not a condition or a syndrome, and a relatively common personality trait, it comes with its own challenges. HSP makes up about 20% of the general population. (*Acevedo BP et al. 2018*) Dr Elaine N. Aron who coined the term HSP states, “The highly sensitive person (HSP) has a sensitive nervous system, is aware of subtleties in their surroundings, and is more easily overwhelmed when in a stimulating environment.” (1996) This can be attributed as a reason why people often used terms like “light-hearted” for HSP. Though it's not to be inferred that Highly sensitive is always problematic, high sensory processing sensitive people (HSPs) are said to be easily excited and overwhelmed, they are keen observers of aesthetic impressions, and especially sensitive to sensory stimuli. (*Emanuel Jauk et al. 2022*) According to self-report research, people with high SPS scores are significantly impacted by the moods of others. (*Bianca P. Acevedo et al. 2014*) Studies using fMRI were conducted on HSPs, and results of the same indicated that Scores on the HSP were linked to more active brain areas for planning and paying attention, SPS was linked to the activation of the brain areas responsible for awareness, sensory integration, empathy, and action planning for both joyful and sad picture situations. (*Bianca P. Acevedo et al. 2014*) A study was conducted on how Sensitive individuals with a prevalence of SPS personality trait experience and cultivate well-being in “WEIRD” which stands for Western Educated Industrialised Rich Democratic society. Semi-structured qualitative interviews with twelve adults were conducted, and results indicated, people with high levels of sensitivity believe that harmony in many different dimensions is the source of well-being. The importance of low-intensity positive emotion, self-awareness, self-acceptance, positive social relationships balanced by times of solitude, interacting with nature, contemplative practises, emotional self-regulation, engaging in self-compassion, having a sense of purpose, and optimism was stressed by interviewees. Subjects expressed that problems with one's physical health and difficulty saying

"no" to others were obstacles to their well-being. (*Becky A. Black 2020*)

H. Development of HSP Across Lifespan

In order for survival it becomes essential for all living organisms to depend on environmental resources like food, shelter as well as social support. Sensory Processing Sensitivity shows sensitivity to the environment in both positive and negative ways, describing inter-individual differences. Individuals diagnosed with high SPS, tend to have more stress-related problems with regard to the environment they are associated with, which otherwise also enhances one's ability to take advantage of a healthy environment (*Homberg J.R, 2021*). SPS is considered to be heritable around 45% with 20%-30% of the population to be found high on SPS (*Assary E., 2020; Aron E.N, 1997; Lionetti F., 2018*). A recent study exhibits a systematic review of individuals high on SPS who experience a lower quality of life in physiological, psychological/mental, emotional and some of the areas of social context and also associated with some positive outcomes (*Costa-López B., 2021*).

(*Aron E.N, 1997*) Aron and Aron explain SPS as intensifying awareness of sensorial stimulation, more emotional as well as physiological reactivity, behavioural inhibition and deeper cognitive processing of environmental stimuli. Individuals with this trait express stronger autonomic nervous system activation in certain stressful situations, along with extremely positive and negative emotional responses, having deep feelings or empathy towards others strong perception of subtle differences, understanding of the long through repercussions and low threshold for pain and low sufferance to high levels of sensory inputs (*Aron EN A. A., 2005; Aron EN A. A., 2012*).

Adverse childhood environments may cause a stronger negative impact on highly sensitive individuals, leading to a risk to develop behavioural or psychopathological problems in adulthood (*Booth C, 2015*). This is demonstrated throughout their development (*Ellis BJ, 2011*) which causes chronic stress health problems. This personality trait is linked with a more sensitive central nervous system. Recent studies show that sensory hypersensitivity is an amplification of the neural signals that activate hypersensitivity to pain, such as chronic fatigue and fibromyalgia, along with complex diseases (*Dixon EA, 2016*). SPS is seen as a conceptualised temperament trait and not as a disorder. In adverse childhood environments/surroundings, individuals with high SPS may move from typical to atypical development, which leaves a negative impact on the daily lifestyle and well-being of the individual, a higher risk of behavioural problems and psychopathologies in childhood and adulthood (*E.N. Aron, 2005; C. Booth, 2015; M. Liss, 2005*). Sensitive individuals show higher susceptibility and presume an evolutionary perspective, in which individual differences in sensitivity represent two alternative developmental ways which are maintained by natural selection to escalate the diversity and fitness of beings (*J. Belsky K. H., 1998; J. Belsky M. P., 2009*). Differential susceptibility focus on phenotypic temperament characteristic, genetics variants and

endophenotypic attributes that may act as plasticity factor which makes the individual more malleable to environmental influences (J. Belsky K. H., 1998) (J. Belsky M. P., 2009).

I. Cultural Differences & HSP

Arthur Aron, a psychology professor at State University New York at Stony Brook gives the example of a research study by Xinyin Chen, Kenneth Rubin, and Yuerong Sun. This examined popularity among students in China and Canada. In China “shy” and “sensitive” children were among those most chosen by others to be friends or playmates. The research points to how traits are labeled as positive and the minority of HSPs are held up as models for other children to emulate, not problem children who need to overcome their deficiencies. In Canada, shy and sensitive children were among the least chosen. In America, HSPs are more likely to label themselves negatively as “inhibited,” “introverted,” or “shy” (Xinyin Chen, Kenneth H. Rubin and Yuerong Sun, 1992). This study also concludes that research, professionals and standards often reflect the assumptions of the broader culture.

In collectivist cultures communities that we create and are a part of remain central to the lives of individuals, forming our support systems and identity as a group. It can be the best place for highly sensitive people to be part of. Such a cultural society can be found in Japan, where sensitivity is considered a strength and the term HSP is widely known. In Mandarin, the word for shy or quiet means good or well-behaved; sensitive can be translated as “having understanding,” a term of praise (Jocelyn, Einkenburg, 2019). In contrast, individualistic cultures pay attention to distinguishing the individual as autonomous, with personal motives replacing group interests. HSPs harshly survive in this culture, which neither values nor accommodates high levels of sensitivity. Such as American culture views sensitivity as a weakness. HSPs are used to hearing: “You’re too sensitive” and “You need to lighten up” Here society has an intolerance for anything perceived as weak and sees sensitivity and heightened perceptivity as personal failings to overcome. Aron observes that highly sensitive boys and men often struggle much more than girls and women, largely because of the American expectations of what it means to be male. (Carie Little Hersh, 2016). Hence it has been seen how differently sensitivity is experienced and valued from culture to culture. The idea of some countries or cultures being better suited for HSPs than others makes sense when thinking of how behavioural traits are viewed differently, whether positive or problematic, depending on the cultural context.

J. Current Study

The purpose of this research is to find correlations between HSP and five personality traits by using NEO-FFI 3 personality test. The five personality traits being Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness. The presence and intensity of these traits among individuals that have HSP as their personality traits are measured and reported. Furthermore, the gender difference for the presence of HSP with certain personality traits is also measured, by indicating

the frequency of certain traits more in a particular gender than the other.

The study is also conducted in an attempt to throw light on the missing pieces in the past research and to fill those gaps. It has been established with the Review of Literature that HSP as a topic is still very new and in its infancy stage, and so only a few research studies have been undertaken to explore its relationship with other factors of personality. Besides, not a sufficient number of researches are available to establish relationships of various personality traits and HSP. In addition, with respect to the Indian population there is a lack of research for correlational study between HSP and personality and as a result there is a lack of theory which results in an evidence gap. Lastly, doing personality profiling for HSP and developing meaningful and scientific understanding will aid professionals to design interventions that might help improve the quality of life of people on the higher end of the continuum of sensitivity and their wellbeing.

II. METHODOLOGY

A. Hypothesis

- *There will be no significant difference in Highly sensitive people between genders.*
- *There will be a significant correlation between Highly sensitive people and Neuroticism.*
- *There will be a significant correlation between Highly sensitive people and Openness.*
- *There will be a significant correlation between Highly sensitive people and Extroversion.*
- *There will be no significant correlation between Highly sensitive people and Agreeableness.*
- *There will be no significant correlation between Highly sensitive people and conscientiousness.*

B. Measuring Scales

➤ *Highly Sensitive Person Scale (HSPS):*

Highly Sensitive Person Scale (HSPS) was developed by Aron and Aron (1997) to measure sensory-processing sensitivity, which is conceptualised as involving both high levels of sensory sensitivity and associated arousability. The scale's elements reflect several facets of sensitivity to both internal and external stimuli, including sensitivity to loud noises, life transitions, the arts, and other people's moods. The participants were asked to rate how much they agreed or disagreed with statements that described various characteristics of possible human thoughts, feelings, and behaviours. There are 27 items on this scale, with each item having a rating from 1 (Strongly disagree) to 7 (Strongly agree). HSP as a negatively induced personality trait. (Dr Elaine A, 2022) Dr Elaine with other researchers has worked on an updated version of the HSP scale. This scale has proven its accuracy. It has sufficient levels of validity and reliability (content, construct and discriminant). According to the rho-equivalent reliability, it has a validity of 0.85 and an internal consistency of 0.87. (Montoya Perez, et al 2019) (Ref. Link) A psychometric study of the HSP scale, showed

that this scale is a valid and highly reliable measure of the construct of SPS. (Kathy A.S, et al 2006).

➤ *NEO-FFI:*

The NEO-FFI (five factor inventory), a condensed version of the NEO PI-R (personality inventory-revised) measuring neuroticism, extraversion, openness, agreeableness, and conscientiousness, was used to evaluate personality (Costa & McCrae, 1992). Since agreeableness and conscientiousness have not been linked to the components of HSPS in previous studies, they were not included in this study (Smolewska et al., 2006). In order to measure the components of neuroticism, extroversion, and openness, 36 items from the NEO-FFI were used in the present study. Extroversion is the polar opposite of introversion, as explained in the Introduction section. On a scale from 1 (strongly disagree) to 5 (strongly agree), the participants were directed to identify their level of relative agreement with statements defining various characteristics of thoughts, feelings, and behavior that reflect individual personality differences. The three expected variables of neuroticism, extroversion, and openness were replicated using a factor analysis.

The 60 questions of the short form of the NEO Personality Inventory assess five personality traits: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. The validity and reliability of the NEO Personality Inventory short form were examined in the study. With hand sampling, 630 students were enrolled in the descriptive correlative study at the military corps college, where they completed the Personality Inventory,

NEO-FFI, and Adult Eysenck Personality Inventory. Pearson correlation tests were used for data analysis. The conscientiousness and neuroticism sub-scales had satisfactory reliability (internal consistency) values of 0.83 and 0.80, respectively, and agreeableness and extraversion sub-scales had acceptable values of 0.60 and 0.58. The openness to experience sub-scale, however, did not show any internal correlation (0.39).

C. Research Design

The research design employed for the current study is the correlational research design. Correlation research design is generally used to assess/understand if there exists a relationship between two or more variables. The goal of correlation research is to determine whether there is a statistically significant association or correlation between the variables being studied. In this research design, researchers collect data on the variables of interest and then use statistical techniques to analyse the data to determine the strength and direction of the relationship between the variables. In the

current study, the correlational research design is the perfect match as relationship of HSPS was analysed with each personality traits i.e. Extraversion, Agreeableness, Openness, Conscientiousness and Neuroticism.

D. Participants

The following inclusion and exclusion criteria for sampling were set before the actual data collection.

➤ *Inclusion Criteria :*

- *The participants must be above 18 years.*
- *Only male and female sexes were included.*
- *Participants must be residents of India.*

➤ *Exclusion Criteria :*

- *Participants below 18 years were not included.*
- *LGBTQ++ community was not included.*
- *Non Residents of India were not included.*

➤ *Demographic Details of the Participants:*

Out of 291 Participants, 55% were female and 45% were male. For professions, out of 291, 83.7% were Students, 14.3% were working, and 2% were not working.

III. PROCEDURE

This research was done to explore if there exists a connection between HSP and Personality. The Highly Sensitive Person Scale and the NEO-FFI are the two separate scales used for the same. To maximise the reach, data had been collected using an online Google form. It consisted of the consent form inquiring about individuals' willingness to participate in the study and assuring data confidentiality. Demographic details include age, gender and qualification, instructions of marking the data and the two scales in a likert format with an option of handing over suggestions if any. Participants are asked to score each topic on the HSPS based on their own experiences and relatability. There were seven possible responses: 1 being Strongly Disagree, 2 being Disagree, 3 being Somewhat Disagree, 4 being Neither Agree nor Disagree, 5 being Somewhat Agree, 6 being Agree, and 7 being Strongly Agree.

The second scale follows, where participants are asked to score each issue based on their own experiences using one of five options (1 being Strongly Disagree, 2 being Disagree, 3 being Neutral, 4 being, and 5 being Agree).

The entire questionnaire contained 87 items, with 27 elements from the first scale (HSPS) and 60 elements from the second scale (NEO-FFI).

IV. RESULTS

Descriptive statistics were conducted for the Highly Sensitive Person (HSP) scale and the five factors of the NEO Five-Factor Inventory (NEO-FFI) in a sample of 291 participants. Table 1 The mean HSP score was 124.83 (SD = 29.83), and the means and standard deviations for the NEO-FFI factors were as follows: Neuroticism (M = 27.29, SD = 6.85), Extraversion (M = 25.65, SD = 6.03),

Table 1 Descriptive Statistics of Highly Sensitive Person (HSP) Scale and NEO Five-Factor Inventory (NEO-FFI) Factors (N = 291)

	HSP	N	E	O	A	C
Valid	291	291	291	291	291	291
Missing	0	0	0	0	0	0
Mean	124.832	27.28	25.65	29.54	27.13	28.84
Std. Deviation	29.830	6.848	6.027	5.914	5.864	6.728
Skewness	-1.053	0.265	-0.047	0.402	0.122	-0.197
Std. Error of Skewness	0.143	0.143	0.143	0.143	0.143	0.143
Kurtosis	1.525	0.123	-0.254	-0.020	-0.184	0.152
Std. Error of Kurtosis	0.285	0.285	0.285	0.285	0.285	0.285
Shapiro-Wilk	0.931	0.989	0.994	0.984	0.994	0.992
P-value of Shapiro-Wilk	< .001	0.022	0.295	0.003	0.280	0.107

Openness (M = 29.54, SD = 5.91), Agreeableness (M = 27.13, SD = 5.86), and Conscientiousness (M = 28.84, SD = 6.73).

Skewness and kurtosis values were also computed for each variable. The HSP scores demonstrated negative skewness (skewness = -1.05, SE = 0.14) and positive kurtosis (kurtosis = 1.53, SE = 0.29), indicating a non-normal distribution. Skewness values for the NEO-FFI factors ranged from -0.20 to 0.40, which were within acceptable ranges, and kurtosis values ranged from 0.25 to 0.15.

Moreover, the Shapiro-Wilk test was performed to examine the normality assumption of the data. Results indicated that the HSP scores significantly deviated from normality (W = 0.93, p < .001), whereas the NEO-FFI factors exhibited varying degrees of normality, with Openness being the only factor that significantly deviated from normality (W = 0.98, p = .003).

A. T-Test

Table 2: Descriptive Statistics for Highly Sensitive Person (HSP) Scores by Gender

	Group	N	Mean	SD	SE	Coefficient of variation
HSP	1	121	114.636	30.878	2.807	0.269
	2	170	132.088	26.880	2.062	0.203

A Mann-Whitney U test was conducted to examine gender differences in scores of sensory processing sensitivity, as the assumptions of normality and equality of variance were violated. The results indicated a significant difference between genders, indicating that females

Table 2 (M = 132.088, SD = 26.880) scored significantly higher on sensory processing sensitivity than males (M = 114.636, SD = 30.878).

B. Correlation

Table 3: Spearman's correlations between the Highly Sensitive Person (HSP) scale and the NEO Five-Factor Inventory (NEO-FFI) subscales.

			Spearman's rho	
N	-	HSP	0.546	***
O	-	HSP	0.208	***
E	-	HSP	-0.040	
A	-	HSP	0.008	
C	-	HSP	0.093	
* p < .05, ** p < .01, *** p < .001				

Table 3 shows Spearman's Rho indicates the correlation between the following variables, 1. Openness, 2. Conscientiousness, 3. Extraversion, 4. Agreeableness, 5. Neuroticism, and 6. HSP. We are taking into consideration three levels of significance from .05 .01 and .001, results pertaining to our hypothesis under consideration, indicated that Neuroticism and Openness have a correlation with $p < 0.001$ of correlation.

Results show that the correlation between HSP and Neuroticism ($\rho = 0.546$, $p < .001$) and HSP and Openness ($\rho = 0.208$, $p < .01$) were statistically significant. However, no significant correlations were found between HSP and Extraversion ($\rho = -0.040$), Agreeableness ($\rho = 0.008$), and Conscientiousness ($\rho = 0.093$).

V. DISCUSSION

Highly Sensitive Person (HSP), is a term introduced by Elaine Aron. As per Aron's theory, HSP is the fragment of the population who are found to be high on an innate personality trait, which is known as Sensory Processing Sensitivity (SPS) (Aron, 2012). Highly sensitive individuals are furthermore prone to heed subtle stimuli in their environment to respond to a low threshold of stimuli (Aron, 2012). Eysenck (1971) defined personality as a more or less stable and enduring organization of a person's character, temperament, intellect and physique, which determine his/her unique adjustment to the environment. The Objective of the experiment is 1. To determine the gender difference among Highly sensitive people. 2. To examine the relation between Highly sensitive people and Big Five Personality traits. The Tools used for the experiment are HSP scale and NEO FFI scale. This research was done to explore if there exists a connection between HSP and Personality. So, The Highly Sensitive Person Scale and the NEO-FFI are the two separate scales used for the same. The sample size for this experiment is 291 people, with males and females above the age of 18. The research design employed for the current study is the correlational research design. Correlation research design is generally used to assess/understand if there exists a relationship between two or more variables. The goal of correlation research is to determine whether there is a statistically significant association or correlation between the variables being studied.

From table no.1 Descriptive statistics was inferred for the Highly Sensitive Person (HSP) scale and the five factors of the NEO Five-Factor Inventory (NEO-FFI) in a sample of 291 participants. The mean HSP score was 124.83 (SD = 29.83), and the means and standard deviations for the NEO-FFI factors were as follows: Neuroticism (M = 27.29, SD = 6.85), Extraversion (M = 25.65, SD = 6.03), Openness (M = 29.54, SD = 5.91), Agreeableness (M = 27.13, SD = 5.86), and Conscientiousness (M = 28.84, SD = 6.73). Skewness and kurtosis values were also computed for each variable. The HSP scores demonstrated negative skewness (skewness = -1.05, SE = 0.14) and positive kurtosis (kurtosis = 1.53, SE = 0.29), indicating a non-normal distribution. Skewness values for the NEO-FFI factors ranged from -0.20 to 0.40, which were within acceptable ranges, and kurtosis values ranged

from -0.25 to 0.15. Moreover, the Shapiro-Wilk test was performed to examine the normality assumption of the data. Results indicated that the HSP scores significantly deviated from normality ($W = 0.93$, $p < .001$), whereas the NEO-FFI factors exhibited varying degrees of normality, with Openness being the only factor that significantly deviated from normality ($W = 0.98$, $p = .003$).

The first hypothesis states that there will be no significant difference in Highly Sensitive People between genders. A study was conducted by Hilde Visnes Trå, Frode Volden & Reidulf G. Watten. The study looked at the component structure of the Highly Sensitive Person scale (HSP) as well as gender variations in HSP. The findings of Study 1 revealed a connected three-factor solution: The first component indicated excitability, being readily stimulated, negative emotional reaction, frustration, avoiding stressful circumstances, and early timidity. Factor 2 included a low sensory threshold as well as sensory pain. Factor 3 measured the intensity of aesthetic emotions, attention with environmental details, and socio-emotional sensitivity. Gender disparities were discovered, with women having higher HSP scores on all categories, even when personality factors were adjusted for. According to our research, The results of the Welch t-test indicated a significant difference in HSP scores between the two groups, $t(235.677) = -5.011$, $p < 0.001$, with a mean difference of -17.452 (SE = 3.483). The Mann-Whitney U test also indicated a significant difference in HSP scores between the two groups, $U = 6480.500$, $p < .001$, with a Hodges-Lehmann estimate of -16.000. This indicates a clear difference in gender in Highly Sensitive People. Hence the first hypothesis is not retained.

The second hypothesis is that there will be significant correlation between Highly Sensitive People and Neuroticism. SPS and neuroticism appear to have many characteristics. One possible explanation is that both highly sensitive and scared people react cautiously to stimuli (Smolewska et al., 2006). Because highly sensitive people are more aware of their surroundings and more easily aroused, it would seem natural for them to respond to stimuli with caution, but this does not imply that highly sensitive people are necessarily fearful and neurotic (Aron & Aron, 1997). According to the study conducted by us, the value of spearman's rho value is ($\rho = 0.008$). Hence according to the previous explanation stated above, the hypothesis is retained.

The third hypothesis states that there will be a significant correlation between Highly Sensitive People and Openness. According to the research conducted by us, the spearman's rho values indicate that the correlation between HSP and Openness were statistically significant, that is, ($\rho = 0.208$, $p < .001$). According to previous research conducted by A Dr. Linnea Passaler, Three typical personality traits have been linked in research to extremely sensitive people. Increased neuroticism, openness to new experiences, and decreased extroversion are these personality traits. Someone who exhibits neuroticism tends to have bad feelings. These are sad, angry, and anxious emotions. These characteristics are also present in highly sensitive individuals. This is

because their thoughts or emotions, as well as the environment around them, can easily overwhelm them. Being open to new experiences indicates that a person is generally interested in novel concepts or unusual or novel items. Due to their propensity for experiencing the world in a very dynamic manner and appreciating the variety of life experiences, highly sensitive individuals may be more likely to exhibit this trait. Outgoing behavior and the wish to be around other people are common definitions of extroversion. Introverts and self-reflectors are more prevalent traits in highly sensitive people. Therefore the hypothesis is retained.

The fourth hypothesis is there will be significant correlation between Highly Sensitive People and Extroversion. According to our research, the spearman's value is ($\rho = -0.040$). This indicates that there is no significant difference between HSP and Extroversion. Three typical personality traits have been linked in research to extremely sensitive people. Increased neuroticism, openness to new experiences, and decreased extroversion are these personality traits. Someone who exhibits neuroticism tends to have bad feelings. These are sad, angry, and anxious emotions. These characteristics are also present in highly sensitive individuals. This is because their thoughts or emotions, as well as the environment around them, can easily overwhelm them. Being open to new experiences indicates that a person is generally interested in novel concepts or unusual or novel items. Due to their propensity for experiencing the world in a very dynamic manner and appreciating the variety of life experiences, highly sensitive individuals may be more likely to exhibit this trait. Outgoing behavior and the wish to be around other people are common definitions of extroversion. Introverts and self-reflectors are more prevalent traits in highly sensitive people. (Dr. Linnea Passaler 2023). As it is mentioned above, there is no significant correlation between HSP and Extroversion and hence our hypothesis is not retained.

The fifth hypothesis is that there will be no significant correlation between Highly Sensitive People and Agreeableness. The sixth hypothesis is there is no significant correlation between Highly Sensitive People and Conscientiousness. According to the study conducted by us, using Spearman's ρ , the results indicate no correlation between HSP and Agreeableness and Conscientiousness, as spearman's correlation value is ($\rho = 0.008$) for both Agreeableness and Conscientiousness. According to Corina U. Greven, et al. 2006, Two unpublished pilot investigations have pushed beyond the five-factor model's overwhelming focus on domain level to a fine-grained analysis of which five-factor subdomains (called facets) are especially significant for SPS. In the first pilot investigation, a community sample of 16 to 26-year-olds ($N = 421$) completed both the HSP and the NEO-PI-3 scales, and both domain- and facet-level relationships were investigated (P. Bijttebier, personal communication, April 5, 2018.) SPS shown to be favourably linked with increased Neuroticism and Openness, negatively associated with Extraversion, and no significant connection with Agreeableness and Conscientiousness at the domain level. Thus both the hypotheses are retained.

VI. CONCLUSION

According to the study conducted, females have scored higher on sensitivity than men. There is a correlation between HSP and Neuroticism and Openness. However, according to the study conducted, Highly Sensitive People do not have significant personality traits of Extraversion, Conscientiousness and Agreeableness. There is no significant correlation found between the big five personality traits and the prevalence of HSP.

LIMITATIONS

Due to the length of the questionnaire and exhaustion, respondents may not feel compelled to submit honest, exact responses.

Understanding the questions and the various responses can be influenced by individual variances. For example, the answer option "somewhat agree" may represent different things to different subjects, and have its own meaning to each individual respondent.

Due to restrictions applied over the sampling and the data was gathered via an online Google form. For example, the questionnaire would only have reached persons who were downwind and would only have been completed by those who were literate and those who were sufficiently interested in the topic to take the time and trouble to respond.

The data was not found to be normally distributed as the majority of the sample was between the ages of 19 and 25. There were also certain outliers found. The distribution of the sample was unequal because the majority of participants were students, and the qualification falls specifically under graduation.

IMPLICATIONS

Current study can make its contribution to the pool of research on the arena of HSP. It can function as a reference point or basis for researchers while carrying out further research on the same.

Being in its infancy stage makes it a limitation that the conceptual framework is not widely explored or talked about. As 20% of the population comprises people with HSP as a dominant personality trait, it is important for others to understand and cater to their needs. This research can help in doing the same along with spreading awareness and eliminating the prevalent misconceptions.

If only we knew the relationship of HSP as a personality trait with other personality traits, it would help us in personality profiling that would further contribute to the formation of required alliances.

A HSP is more like someone who needs emotional support, encouragement, and validation during difficult life circumstances or psychological challenges and has a very uncomfortably unsettling reaction towards their surroundings

if they encounter/experience any type of conflict, violence, or tension. Developing a better understanding and evidence based research may help psychologists designing interventions, training workshops, and tailored supportive psychotherapy.

FUTURE SUGGESTIONS

As the sample has its limitations, this research can be conducted on various age groups, genders, socio economic status, qualifications, diverse cultures, etc. and the differences in the result may be observed and studied. Comparison studies can also be carried out for the same.

The current study tried to examine the correlation between the HSP and Big Five Personality traits. The same research can be carried out to explore the relationship of HSP with other personality traits which can further contribute to personality profiling.

Interventions can be tailored for HSPs with these personality traits. Inferences can be taken in making specific changes in the therapeutic alliances used for helping them in leading a better quality of life.

Other constructs like motivational tendencies can also be studied along with HSP to gain better understanding of the interconnection of the trait with other significant variables that would determine the life of an HSP. In depth interviews may better help in identifying prevalent patterns in the functioning of the individuals with higher sensitivity. Following that more efficient screening tools can be created that covers wider dimensions of this personality trait.

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