# Sensory Processing Sensitivity, Emotional Intelligence, and their contribution to Individual Difference.

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# Submission of Thesis and Dissertation

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## Abstract

**Aim:** To explore awareness of SPS across the sample (*N*=106) to identify the percentage of participants who display the SPS trait, and to investigate if a relationship exists with Sensory Processing Sensitivity (SPS) and Emotional Intelligence (EI). Exploring the subscales of Ease of Excitation (EOE), Aesthetic Sensitivity (AES) and Lower Sensory Threshold (LST) within the Highly Sensitive Person scale (HSPS) and the Trait Emotional Intelligence Questionnaire (TEIQue-SF) subscales of Emotionality, Wellbeing, Self-control, & Sociability. To determine if any of the subscales predict SPS and EI and to establish if any gender differences exist among individual with SPS. **Method:** The study posed two questions to the participants to access the awareness of Sensory-Processing Sensitivity within the sample and to determine if it is believed this trait is present from birth. To test the current theory that SPS is present within 15-20% of the population within the current sample. A Pearson Correlation Coefficient was run followed by two multiple regression analyses and an Independent samples T-Test. **Results:** The current study found 18.9% of the sample indicated Sensory-Processing Sensitivity, 62.3% were aware of the concept of the highly sensitive person prior to taking part in the study, individuals with higher Sensory-Processing Sensitivity had lower Emotional Intelligence, the subscale of Aesthetic Sensitivity (AES) within the HSP Scale was a significant predictor of Emotional Intelligence and no gender differences exist in Sensory-Processing Sensitivity within the current sample. Further recommendations for research and practical implications are discussed.

**Table of Contents**

# Sensory Processing Sensitivity, Emotional Intelligence, and their contribution to Individual Difference.

Trait characteristics and temperament define us as individuals constructing our identities and making us unique, setting us apart from our fellow man. Our genes, environment, and the interactions between them determine our traits and the temperaments we possess (Maltby et al.,2019). One such trait characteristic of which has a biological basis is Sensory-Processing Sensitivity (SPS) which was first proposed by Aron and Aron (1997). Studies conducted by Aron and Aron indicated that 15-20 percent of the population possess this trait. Individuals who possess the SPS trait exhibit a heightened awareness of emotional, social, and sensory stimuli to their environment and within themselves. They may be more sensitive to physical pain, have reactive immune systems and a tendency to be more prone to allergies (Aron, 2002). Information is processed deeply, and within social settings, individuals will have a greater awareness of emotions within themselves and others (Aron & Aron, 1997; Aron & Aron, 2012). The highly sensitive person is more in tune to social cues such as moods, facial expressions, and relationships (Aron, 2002). Taking a multi-disciplinary approach to SPS, researchers have identified biological, environmental, and genetic factors which play a role in SPS and on the outcomes for individuals who possess this innate trait characteristic (Acevedo et al., 2017). The following literature review will explore the conceptualization of this trait and associated studies building upon this concept in-depth.

## Sensory Processing Sensitivity & Associated Personality Traits

The conceptualization of the SPS trait encompasses depth perception, empathy, overstimulation, heightened emotional responses, and an awareness of subtle changes within the environment and others (Brohl et al.,2021). Although SPS trait characteristics may appear like established personality constructs, research has suggested that they diverge (Pluess, et al., 2018; Tra et al., 2022). Studies have been conducted to investigate SPS' association with

personality traits. Investigations on two Bayesian Meta-Analyses were conducted to assess the associations between the Big Five personality traits and Sensory-Processing Sensitivity (SPS) (Lionetti et al., 2019). The results demonstrated that SPS has a moderate relationship to some Big Five personality traits. A Neuroticism/ behaviour inhibition, and negative affect within SPS adults. Three facets Extraversion, Openness and Positive affect for adults and children, indicated a significant association, however the strength of the relationship was weak. These meta-analyses results provide support for the hypotheses that SPS is distinct from the established personality traits and affect. However, consideration must be given to the limited number of studies which have so far investigated personality traits and their association with SPS (Lionetti et al., 2019). A further bivariate correlation analyses was conducted on a Japanese sample (N= 1,626) by Kosuke Yano, and colleagues (2020) supported the findings of the Bayesian meta-analysis conducted by Lionetti and colleagues (2019) however some inconsistences were present. When analysis of the three subscales of Aesthetic Sensitivity (AES) which encompasses sensitivity in relation to appreciation of beauty within the environment, social orientation sensitivity; relating to the individuals awareness of emotional reactions; the actions which need to be taking to alleviate emotional and physical discomfort in others, Ease of Excitation (EOE) being overwhelmed by external and internal stimuli and Low Sensory Threshold (LST) unpleasant sensory arousal where considered (Grimen & Diseth, 2016). AES indicated a weak negative correlation with neuroticism. Therefore, higher levels of AES resulted in lower levels of neuroticism. Positive correlations where present in the LST and EOE subscales for the other four traits of agreeableness, extraversion, openness, and conscientiousness. Results indicated a weak correlation with conscientiousness, a strong positive correlation with openness, and extraversion indicating a weak correlation. Factors which may contribute to these

inconsistences could be due to differences within collective and individualistic cultures, biological differences, or weakness in measurement (Kosuke Yano et al., 2020).

**Sensory Processing Sensitivity and Environmental Sensitivity**

Individual differences in environmental sensitivity have resulted in the development of several theoretical frameworks for environmental sensitivity variations. Two of the most prominent theories are Aron's SPS theory and Boyce and Ellis' proposed biological sensitivity to context theory (BSC) which is viewed from a developmental perspective (Ellis et al., 2011; Acevedo, 2020). BSC theory support evidence for the existence of children who are highly sensitive/reactive who grew up in adverse environments being affected by disproportionate morbidity rates in comparison to highly reactive children who grew up in highly supportive, low stress settings (Boyce & Ellis, 2005). Moreover, BSC is reflective of a sensitivity to aversive and protective contextual effects, which demonstrates biologically highly reactive predisposition within children. This suggests a unique and distinct sensitivity to environmental influences. Highly reactive children who grew up in stressful situations had higher rates of respiratory illness at a significant level than their less reactive peers, however similarly reactive children growing up in minimal stress environments possessed better health overall. These observations posit that greater stress reactivity may impact on an increased biological sensitivity to context, where potentially negative health affects result from adverse conditions and under supportive conditions positive affects ensue (Belsky et al., 2009; Boyce & Ellis, 2008). While BSC theory directly applied to childhood development, SPS theory initiated within assessment of the adult population summarizing environmental sensitivity within a personality trait to subsequently consider this sensitivity within a childhood context due to its innateness. These theories within the theoretical framework for environmental sensitivity have demonstrated that a nurturing and supportive environment is conducive to better outcomes for those who possess this trait, adverse environments have a far more

negative outcomes on an individual's physical and mental health who possess this environmental sensitivity then those that do not (Greven et al., 2019).

**Sensory Processing Sensitivity & the Neurobiological perspective**

Heightened sensory responses to stimuli and environmental sensitivity are primary characteristics of SPS. However, these trait characteristics are shared with other neurodivergences such as autism spectrum disorder (ASD), Post- traumatic stress disorder (PTSD) and Schizophrenia (SZ) (Acevedo et al.,2018; Liss et al.,2008). Researchers are still trying to fully characterize the SPS trait and clarify the distinctions between these similar symptom sharing disorders. With the emergence of advancements in technology such as Functional magnetic resonance imaging (fMRI) greater exploration of SPS trait is possible. A systematic review of fMRI studies was conducted on participants responses to emotional and perceptual tasks to distinguish SPS as a stable trait and to determine a neural activation distinction between the characteristics that define SPS trait from these symptom sharing disorders (Acevedo et al., 2018). This review established the implied neural regions in SPS with those found in fMRI studies of individuals with ASD, PTSD, and SZ. Results found similar activations in the precentral gyrus across all four, with neural activations unique to SPS in brain regions involved in awareness, empathy, processing, memory, and physiological homeostasis (Acevedo et al., 2017). The results of this study identified key neural patterns that may help distinguish SPS from sensory symptom disorders and address the neurodiverse perspective that all sensory issues are indicative of ASD's. Moreover, the author suggests that the adaptive nature of SPS, which encompasses memory depth perception for environmental and social stimuli ultimately function to facilitate survival and well-being (Acevedo et al., 2018). These studies provide evidence that Sensory Processing Sensitivity has associations to resting state brain connectivity within the dorsal, ventral attention and limbic regions, implicated in memory consolidation, attention control and cognition. With an increase in

resting state brain connectivity within the hippocampus and the precuneus which are involved in episodic memories (Acevedo et al., 2018).

Individuals who are highly sensitive are believed to be strongly affected by the moods of others (Aron, 2002). A *f*MRI study conducted on 18 highly sensitive participants to determine if neural system activation was engaged in response to perceiving emotions of others involved the participants being shown pictures of their romantic partners and strangers displaying neutral, negative, or positive expressions on their faces. The results indicated a strong activation in the cingulate, insula, inferior frontal gyrus, middle temporal gyrus, and the premotor area of the brain involved in awareness and empathy when the participant viewed their partners images and for the happy expressions of the strangers faces (Acevedo et al., 2014). However, there are several limitations to this study, one of which being due to the sample being soon to be or newly married couples. This would reflect a time where the participants would be positively emotionally charged, constraining the generalizability of their results to the general population (Acevedo et al., 2014).

**Sensory Processing Sensitivity & Emotional Intelligence**

Previous studies have identified greater memory for emotional reaction within us, and others, through hippocampus activation facilitating the comparison of past emotional memories and responses to facilitate the interpretation of present emotional meaning and responses (Acevedo et al., 2017). Individuals with SPS have been shown to have a greater awareness of emotions in themselves and in others, with deep and connective cognitive processing abilities (Aron & Aron, 1997; Mesulam, 1998). Furthermore, emotion responsivity has been shown to strengthen attention, memory, and the capacity to learn (Baumeister et al., 2007). While interpersonal sensitivity and individual emotion awareness contribute to social cognition and are essential to higher emotional intelligence development. Observations of how humans apply their emotions to navigate situations within the

environment being identified as an intelligence itself (Mayer et al., 2004). Emotional intelligence acknowledgement has origins within 1930's where Edward Thorndike identified people's ability to get along with each other, conceptualizing this as social intelligence (Maltby et al.,2017). Within the scientific psychological world there has been much debate about the valid nature of the construct of emotional intelligence and its ability to determine successful life outcomes for individuals (Haslam et al., 2017). Through the decades psychologists have acknowledged the relationship between emotions and intelligence.

A primary tenet of Emotional Intelligence is non-verbal sensitivity which refers to an individual's ability to read and effectively interpret non-verbal cues in others. Identification of emotions from non-verbal communication focuses on paralanguage, where an individual's emotional state is communicated via paralinguistic cues such as emotional tone, speech errors, timing, word choice (Poyatos, 1983). A study conducted by Gearhart (2014) investigated this form of non-verbal decoding within individuals who possess the SPS trait and individuals who did not to determine if the SPS sample displayed higher accuracy levels in identifying emotions from paralinguistic cues. Participants were exposed to external stimulation to examine whether arousal contributed to accuracy deficits. Results indicated no significant differences in decoding between the samples regardless of external stimulation (Gearhart, 2014).

Converse to Gearhart's (2014) study, a study conducted to explore if any relationship exists between the dimensions of Emotional Intelligence, specific aspects of empathy, and non-verbal sensitivity result findings indicated that the EI dimensions that best predicted non-verbal sensitivity was attention. The authors state that previous studies on non-verbal sensitivity are very limited and propose that further studies will contribute to a greater understanding of Emotional Intelligence (Fernandez-Abascal & Martin-Diaz, 2019).

An empirical study conducted by Li & colleagues (2020) on *N*= 55 undergraduate students explored the relationship between sensitivity and emotional intelligence, the findings suggested that sensitivity and emotional intelligence were positively significantly correlated when individuals indicated higher levels of mental health (Li et al, 2020). Conversely a negative effect of sensitivity on emotional intelligence was shown with individuals with SPS who possessed poorer/lower levels of mental health also had lower emotional intelligence than their SPS counterparts with better levels of mental health overall. The authors propose SPS individuals with higher mental health are more likely to perceive and adapt to the emotions of those around them and within themselves more effectively, contributing to higher emotional intelligence levels than sensitive individuals with lower mental health. Furthermore, the study identified mental health levels regulate the strength and the direction of the relationship between emotional intelligence and sensitivity (Li et al.,2020).

**Sensory Processing Sensitivity & Gender Differences**

Some early self-report studies reported gender differences in SPS, however this may be indicative of the attitudes at the time. Male participants were explicitly less likely to admit to crying etc (Aron et al., 1997). However, scores where the same across both genders when the questions were not as explicitly expressed. In contrast to these findings many recent studies have found females scored significantly higher than males in SPS (Assary, 2021; Benham, 2005; Drndarevic et al., 2021; Kibe et al., 2020). Furthermore, many previous studies were found to be predominately gender biased (Grimen & Diseth, 2016; Sobocko & Zelenski, 2015; Konrad & Heizberg, 2017). A study conducted by Tra and colleagues (2022) were one of the first to conduct gender matched studies on participants to assess if gender differences exist in the HSP sample. Controlling for the Big Five personality traits due to previous studies indicating women typically score higher on traits of agreeableness, neuroticism, and openness then men which have close associations to SPS (Costa et al.,

2001). The sample *N*= 1096 was divided into male (*N*=548) and female (*N*=548) participants and results found women had higher SPS scores in the overall scale and the three subscales of AES, EOE, and LST.

**The Current Study**

On review of the research literature discussed, investigation into the SPS construct and the relationship to emotional intelligence are scare across the literature despite the connection to emotions, neural activations, and emotion awareness evident within many studies (Aron, 1997; Acevedo, 2017). Darwin (1872/1925) suggested the survival and evolution of humans and non-humans is reliant on the ability to express and signal emotions. Drawing upon the evolutionary perspective, the SPS trait and the characteristics of this trait has been proposed to facilitate and contributed to survival of the species (Pluess et al., 2018). Negotiating our personal, social, and emotional environment today is determined by how well we communicate, empathize, relate, and predict the actions of those around us. A 21st century equivalent of survival of the species so to speak. The aim of this study is to fundamentally access this theory through the 21st century evolutionary lens.

The proposed study aims to explore awareness of SPS across the sample, to identify the percentage of participants who display the SPS trait, and to investigate if any relationship exists with Sensory-Processing Sensitivity and Emotional Intelligence. Exploring the subscales of Ease of excitation (EOE), Aesthetic Sensitivity (AES) and Lower Sensory Threshold (LST) within the Highly Sensitive Person scale and the Trait Emotional Intelligence Questionnaire subscales of Emotionality, Wellbeing, Self-control, & Sociability. To determine if any of the subscales predict SPS and EI. Furthermore, is there a difference between males and females SPS scores. The proposed study will pose two questions to the participants to access the awareness of Sensory-Processing Sensitivity within the sample and

to determine if it is believed this trait is present from birth. Furthermore, to test the current theory that SPS is present within 15-20% of the population within the current sample.

It is hypothesized that:

1.Individuals who possess Sensory-Processing Sensitivity will display higher levels of Emotional Intelligence.

2. That higher scores of Sensory-Processing Sensitivity within the HSPS subscales of Ease of Excitation (EOE) and Aesthetic Sensitivity (AES) will predict higher Emotional Intelligence scores.

3. No gender difference will exist within the SPS sample.

# Methods

## Participants

106 participants were recruited using convenience and snowball sampling. Recruitment was achieved exclusively from WhatsApp groups, these groups included Psychology undergraduate student groups, class parent/ primary caregiver WhatsApp groups of primary school and secondary school children, professionals working in the beauty and restaurant businesses. The sample consisted of 78 females (including trans) (73.6%) and 28 males (including trans) (26.4%). Ages ranged from 18-77 years, the average age of the participants 40 years ($M$ =40.41, $SD$=14.46). 63.3% of the sample had knowledge of the concept of the Highly Sensitive person prior to taking part in the study and 85.8% believed this trait was present from birth. 18.9% of the current sample were Highly Sensitive. The SPS mean score was $m$=116.53. The inclusion criteria for this study where participants must be 18 years old and over. The exclusion criteria are children, individuals with an intellectual or learning disability, those who may not understand the consent process, and anyone within a vulnerable group.

## Measures

The Highly Sensitive Person (HSP) scale (Aron & Aron, 1997; Smolewska, 2006) was used to measure sensory-processing sensitivity scores. The scale involves 27 questions on a 7-Likert scale ranging from 1(not at all) to 7 (extremely). The scale includes three subscales of Aesthetic Sensitivity (AES), Ease of Excitation (EOE), and Low-Sensory Threshold (LST). Each subfactor was scored as follows:

AES: 2,5,8,10,12,15,22

EOE:3,4,13,14,16,17,20,21,23,24,26,27

LST: 6,7,9,18,19, 25

Examples of questions for each subscale include:

Q2. Do you seem to be aware of the subtleties in your environment? (AES)

Q3. Do other people's moods affect you? (EOE)

Q4. Do you tend to be more sensitive to pain? (LST)

The published Cronbach's alpha for the HSP scale and 3 established HSPS subscales: α= .84, EOE α=(.74-.87), LST (.73-.83) AES (.60-.81). The Cronbach's alpha for the current study HSPS α= .92 and for the subscales of EOE α=.83, LST α=.76, and AES α=.75

The Trait Emotional Intelligence Questionnaire – Short Form (TeiQue-SF) (Petrides,2007) was used to measure Emotional Intelligence scores. The questionnaire involves answering 30 questions and includes four subscales of

Emotionality: 1,2,8,13,16,17,23,28

Self-Control: 4,7,15,19,22,30

Sociability: 6,10,11,21,25,26

Wellbeing: 5,9,12,20,24,27

Recoding/reverse scoring was necessary for 15 items. (7=1) (6=2) (5=3) (3=5) (2=6) (1=7) Q 2,4,5,7,8,10,12,13,14,16,18,22,25,26,28

Examples of questions for each subscale include:

Q1. Expressing my emotions with words is not a problem for me. (Emotionality)

Q5. I generally don't find life enjoyable. (Wellbeing)

Q15. On the whole I am able to deal with stress. (Self-Control)

Q21. I would describe myself as a good negotiator. (Sociability)

Cronbach's Alpha for Established questionnaire and subscales are α=. 85, Wellbeing α= .83, Self-control α= 0.74, Emotionality α= 0.73 and Sociability α=0.84. The Cronbach's Alpha for the current study is TeiQue-SF α= .91, and the subscales of Wellbeing α= .84, Self-control α=.71, Emotionality α=.74, and Sociability α=.76.

To determine the percentage of Sensory-Processing Sensitivity within the sample the mean SPS scores *m*=116.53 + 1*SD*= 26.78 was applied, any participants who scored over this were considered to have Sensory Processing Sensitivity (Gearhart, 2014).

A statement and two new questions were asked in a Google forms survey with the purpose of determining the general awareness of Sensory-Processing Sensitivity's conceptualization as The Highly Sensitive Person within the sample.

**A highly sensitive person (HSP) is someone who possesses a sensitivity to physical, emotional, environmental, or social stimuli. E.g. they are more sensitive to pain, hunger, lights, noises, emotions within themselves and within others.**

**From this statement**

**Question 1:** Would you have had previous knowledge of the concept of the Highly Sensitive Person, prior to taking this study? Yes or No.

**Question 2:** From your understanding of the Highly Sensitive person. Do you think this sensitivity is present from birth? Yes or No.

**Design and Analysis**

A quantitative research study was chosen to assess the sample. With a cross-sectional design. A G*Power analysis (Faul et al., 2009) was run to determine the specific minimum participant recruitment for the Pearson's Correlation and T-test and formula N>50+8M (Tabachnick & Fidell, 2013) was applied 50+8(3)=50=24=74 for the Multiple Regression Analysis. Criterion variables (CV's) of EI and SPS and predictor variables (PV's) of Wellbeing, Emotionality, Self-Control, and Sociability from the TEIQue-SF scale. Aesthetic sensitivity (AES), Ease of Excitation (EOE) & Lower Sensory threshold (LST) from the HSP Scale were used within the Multiple Regression Analysis. Independent variables of SPS and Gender and Dependent variable of Emotional Intelligence were used for the Pearson's Correlation Coefficient and Independent samples T-test. The analysis was run using IBM

SPSS statistical package. The strengths lie in the sample size *N*=106 and the use of well-established Scales, both the TEIQue-SF and the HSP scale allow for an in-depth look into the facets of EI and SPS. The weakness of the current design lies in the self-report measures used to assess Emotional Intelligence and Sensory-Processing Sensitive. Additionally, the HSPS scale is currently in review for an updated Scale. Review is needed regarding SPS been viewed as normally distributed (on continuum) or dichotomously. Alternatively, the study would benefit from additional measures that are not reliant on self-report. A mixed methods approach may be beneficial by running a qualitative study on the SPS sample alongside the quantitative study would benefit our understanding of the different dimensions of SPS further, followed by a longitudinal study. Furthermore, an experimental design may provide more reliability. The self-report measures used within this study could be considered a weakness due to the self-selecting bias capturing the response at the time of answering the questionnaires as opposed to how they feel generally.

**Procedure**

A pilot study was initially run on 5 participants due to two new questions being asked within the study and to determine the length of time the study will take. Study participants were recruited exclusively from WhatsApp groups that consisted of parents/ primary caregivers of children of school going age, Psychology Undergraduate student class groups, professionals working in the beauty and restaurant businesses. The study was conducted using an online survey via Google forms. A link to the study was sent into various WhatsApp groups attached to a message asking for voluntary participation in the study. Information within Google forms link was provided in the participant information sheet followed by a participant consent sheet where participation consent was given by ticking a box to consent. Participants were informed of what was involved in participation, the purpose of the study and that the study will take between 10-15 minutes to complete. Due to no time constraints in

the online study the participants were informed they can avail of breaks at their own discretion. The participants were asked to answer four demographic questions indicating their Age, Gender, and two questions with YES/No answers relating to their awareness of the Highly Sensitive Person, followed by a 27 question 7-Likert Highly Sensitive Person (HSP) scale, answer responses were as follows (1= not at all) to (7=extremely) followed by the Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF) Questionnaire, which involved answering 30 questions on a 7-Likert scale, answers responses were as follows (1= Completely Disagree) to (7= Completely Agree). A debriefing form followed completion of the three sections on Google forms, informing the participant about the nature of the study along with my details and the details of my supervisor. Support helplines where also provided if the participant felt distressed.

**Ethical considerations**

This research study was conducted with approval from The National College of Ireland and is in line with The Psychological society of Ireland code of Professional ethics. The data was collected in accordance with NCI Ethical Guidelines and procedures for research involving human participants. Due to the anonymous nature of the online study arrangements to ensure protection of the participants identity was not necessary. Anonymised data collected will be archived and kept on an online data repository and will be available for secondary data analysis. Consent was required for access to the online repository and follows the FAIR Data policy. This was communicated to the participant via the information sheet (Appendix 1) An information sheet, consent form, and debrief sheet were contained within the study (See APPENDICES).

# Results

## Descriptive Statistics

The sample consisted of a total of *N*=106 participants, 78 females (including trans) (73.6%) and 28 males (including trans) (26.4%). Age ranged from 18-77 (*M* =40.41, *SD*=14.46). Overall, 66 participants (62.3%) had an awareness of Sensory-Processing Sensitivity prior to taking part in the study and 91 participants (85.8%) believed Sensory Processing Sensitivity is present from birth. 18.9% of the sample indicated being highly sensitive. See Table 1 below for all continuous variables.

Table 1

*Descriptive statistics for all continuous variables N=106*

| Variable | *M* [95% CI] | *SD* | Range |
|---|---|---|---|
| Age | 40.41[37.62-43.19] | 14.46 | 59 |
| HSPS Total | 116.53[111.25-121.82] | 26.78 | 145 |
| AES | 35.02[33.60-36.44] | 7.31 | 33 |
| EOE | 53.97[51.57-56.37] | 12.34 | 65 |
| LST | 22[20.45-23.55] | 8 | 35 |
| TEIQue Total | 150.76[145.82-155.71] | 25.18 | 129 |
| Wellbeing | 32.34[30.98-33.70] | 6.94 | 32 |
| Self-Control | 27.23[25.93-28.53] | 6.70 | 34 |
| Emotionality | 42.34[40.87-43.82] | 7.62 | 36 |
| Sociability | 28.73[27.43-30.03] | 6.68 | 32 |

The relationship between Sensory-processing sensitivity and Emotional intelligence was investigated using a Pearson product moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. There was a moderate, negative correlation between the two variables ($r$= -.35, $N$=102, $P$<.001). This indicates that the two variables shared approximately 12% of the variance in common. Results indicate that higher levels of sensory-processing sensitivity are associated with lower levels of emotional intelligence.

Multiple regression was performed to investigate if Aesthetic Sensitivity (AES), Ease of Excitation (EOE), and Lower Sensory Threshold (LST) predicted levels of Emotional Intelligence (EI). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity with tests for multicollinearity indicating Tolerance and VIF values where in an acceptable range. The correlation between the predictor variables included in the study were examined. 84.1% of the variance in EI was explained by the predictors of AES, EOE, and LST, $F(3,97)=171.58$, $p<.001$. The predictor variable AES in the model was statistically significant. (See Table 2 below)

Table 2

*Standard multiple regression model predicting Emotional Intelligence*

| Variable | $R^2$ | *B* | *SE* | β | *t* | *p* |
|---|---|---|---|---|---|---|
| Model | .84* | | | | | |
| AES Total | | 3.1 | .16 | .91 | 19.2 | .001*** |
| EOE Total | | -.11 | .13 | -.05 | -.81 | .420 |
| LST Total | | .16 | .18 | .05 | .87 | .385 |

*Note:* Statistical Significance * $p < .05$; ** $p < .01$; *** $p < .001$

Multiple regression was performed to investigate the subscales of emotionality, self-control, sociability, and wellbeing within the TEIQue-SF subscales predicted levels of Sensory-processing sensitivity. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. With tests for multicollinearity indicating Tolerance and VIF values in an acceptable range. Additionally, the correlations between the predictor variables included in the study were examined. 27.5% variance in SPS was explained by the predictor variables. $F(4,95)=9.00$, $p<.001$. Self-control was the largest predictor of SPS, followed by Emotionality both making a statistically significant contribution, with Wellbeing making the weakest prediction. (See Table 3 below).

Table 3

*Standard multiple regression table predicting Sensory Processing Sensitivity*

| Variable | $R^2$ | B | SE | β | *t* | *p* |
|---|---|---|---|---|---|---|
| Model | .28* | | | | | |
| Emotionality | | .89 | -.35 | .25 | 2.53 | .013* |
| Self-Control | | -1.9 | .51 | -.49 | -3.9 | .001*** |
| Sociability | | .16 | .18 | .05 | .87 | .385 |
| Wellbeing | | -.28 | .39 | -.07 | -.72 | .475 |

*Note*: Statistical Significance *$p$ <.05; **$p$ < .01; ***$p$ <.001

An independent samples t-test was conducted to compare Sensory-Processing Sensitivity scores in females (including trans) and males (including trans). Preliminary analyses were conducted to ensure no violation of the assumptions of normality and homogeneity of variance. The difference between female (including trans) ($M$=118.93, $SD$=25.83) and male (including trans) ($M$=109.96, $SD$=28.69*)* was not statistically significant, $t(99) = 1.49$ , $p = .137$, two-tailed) and the effect size was small (Cohen's $d = 0.3$). Results therefore indicated no difference in mean SPS scores between female (including trans) and male (including trans) participants.

## Discussion

The aim of the current study was to explore Sensory-Processing Sensitivity (SPS) and its conceptualization of the Highly Sensitive Person as a temperament trait. To access the awareness and prevalence of SPS within the sample, to investigate if a relationship exists between Sensory-Processing Sensitivity (SPS) and Emotional Intelligence (EI). To determine if the subscales of Ease of Excitation (EOE) and Aesthetic Sensitivity (AES) predict EI and to assess if any gender differences exist within individuals who possess SPS. Within the current study 18.9% of the sample possessed SPS, 62.3% of the sample had been previously aware of the concept of the Highly Sensitive Person prior to taking part in the study and 85.8% of the sample believed this sensitivity was present from birth.

The current study rejected the first hypothesis that participants with SPS would have higher emotional intelligence than the participants who were not highly sensitive. This study found a moderate negative significant relationship with SPS and EI. Indicating participants who had higher SPS had lower emotional intelligence than those who were not highly sensitive. The study conducted by Li & colleagues (2020) concurred with this result. However, when controlling for mental health found Sensory-Processing Sensitive participants who exhibited better mental health were more emotionally intelligent than Sensory-Processing Sensitive participants with poor mental health. A meta-analysis conducted to evaluate the relationships between variables associated with mental health and EI found a stronger correlation with better mental health and EI than poorer mental health and EI (Luo & Jin, 2016). These finding would concur with the findings of Li and colleagues (2020). Indicating the capacity to apply their emotional awareness more effectively than the SPS participants with poor mental health. One possible explanation of this maybe that SPS individuals with higher SPS are more inclined to become overwhelmed by their emotions and their perceptions of the emotions of others to effectively apply their emotional awareness to

their advantage. Further research is required to establish the mediating effect the mental health variable has with SPS and EI.

The second hypothesis proposed that within the HSP scale, the subscales of Ease of Excitation (EOE) and Aesthetic Sensitivity (AES) would by the greatest predictors of Emotional Intelligence. The results of the current study accepted part one of the hypothesis, finding AES to be the greatest predictor of emotional intelligence with a positive significant association to EI. AES sub-scale encompasses an individual's awareness of emotional reactions within themselves and others. Furthermore, being aware of what needs to be done to reduce discomfort in others emotionally or physically (Evans & Rothbart,2008). This subscale would have close associations with EI due to emotion awareness. An example of a question within the AES subscale is as follows; *When people are uncomfortable in a physical environment do you tend to know what needs to be done to make it more comfortable (like changing the lighting or the seating)?* The hypothesis that the subscale EOE would predict Emotional Intelligence was rejected in the current study. An example of a question within the EOE subscale is as follows: *Do other people's moods affect you?* The weakest predictor of emotional intelligence was Lower Sensory Threshold (LST). These finding support the theory proposed by Aron & Aron that individuals who possess SPS have a greater awareness and responsiveness to the emotions of others (Aron, 2012). However, EOE and LST have been found to have negative associations to SPS and individuals scoring high within these subscales have been found to be overwhelmed by emotional and sensory input (Liss et al., 2008; Smolewska et al., 2006). Which may offer one possible explanation for EOE not predicting EI. The AES subscale has been found to relate to beneficial outcomes such as effective communication skills, potentially leading to better subjective wellbeing (Sobocko & Zelenski, 2015). Within the TEIQue-SF questionnaire subscales the strongest predictor of SPS was Self-control, followed by Emotionality which both made a statistically significant

contribution to SPS with the weakest predictor of SPS being wellbeing. These findings highlight the issue of emotion processing in individuals who possess higher levels of SPS. Where potentially emotional reactivity can negatively impact the wellbeing of SPS individuals (Sobocko & Zelenski, 2015; Wolf et al., 2008). Moreover, the CV of Self-Control which is defined as the ability to demonstrate control over one's emotions and desires particularly in challenging situations been predictive of SPS offers a greater insight into the variables which contribute to EI and SPS. While this study provides evidence to support the theory that SPS enhances the ability to perceive emotions, this perceptiveness does not translate to emotional intelligence within the current study. However, we can conclude from these findings that aspects of SPS are related and predict EI adding to the literature that aspects of SPS offer advantages to those that possess this trait.

While SPS has been found across studies to be associated with higher levels of anxiety, depression, and poorer life outcomes overall (Bakker & Moulding, 2012; Liss et al., 2005). Investigations into positive life outcomes associated with SPS is underrepresented within the research (Mailloux & Erchill,2008). Two studies conducted by Sobocko & Zelenski (2015) on trait SPS, and subjective well-being found that not all SPS is associated with poor life outcomes. Both studies found AES subscale to be positively associated with well-being and more desirable personality traits of extraversion, and openness (Evans & Rothbart,2008). These findings would concur with the study conducted by Li and colleagues (2020) which found good mental health in SPS individuals to be associated with emotional intelligence. Drndarevic and colleagues (2021) conducted a pilot study on Sensory-Processing Sensitivity & pathways to Depression & Aggression investigating the mediating role of trait emotional intelligence & decision-making. The authors purposed that SPS and EI may function as a mediator against problematic externalizing behaviours. Evidence indicated highly sensitive girls were more inclined to demonstrate internalizing behaviours where

highly sensitive boys were more inclined to externalizing behaviours (Bilge et al., 2014; Drndarevic et al., 2021). Furthermore, these studies findings can support the current study findings of the positive associations and interactions of SPS dimension of AES and EI .

The third hypothesis was accepted in the current study that no gender differences exist in SPS between female and male participants despite many studies identifying gender differences with SPS. Gender biases were identified across numerous studies, with female participants being overrepresented (Smolewska et al.,2006; Grimen & Diseth., 2016). While this study found no gender differences these findings would conflict with the study conducted by Tra and colleagues (2022). This study was conducted on a large sample $N$ =1096 of gender matched participants finding females scored higher within the HSP scale and all the three subscales of AES, EOE and LST. The researchers went on to categorize SPS individuals into low and high SPS groups to further assess if personality traits differed within the two groups, finding significant differences in all the Big five personality traits except for extraversion which could not be attributed to differences in gender (Tra et al., 2022). Future research would benefit having a larger matched gender sample to attempt to further determine if gender differences exist within other studies.

**Limitations and Strengths**

Limitations of the current study lie in the limited generalizability as 76% of the sample were female. undergraduate students, mothers, fathers, and primary caregivers. Furthermore, assessment of Emotional intelligence and Sensory-Processing Sensitivity was through self-report measures. Potentially resulting in self-selecting biases capturing how the participant feels at the time as opposed to how they feel in general. The sample size for the independent samples T-test when running a G*power analysis required a minimum of 109 participants, however recruitment fell under this number by 3 with 106 participants being recruited (Faul et al., 2009). The strengthens of this study lie in the sample size in respect to

the first two hypotheses and the subscales of each questionnaire allowing of a more in-depth investigation of SPS and its associations with EI and vice versa. The scales used are well established and allowed for an in-depth look into the facets of SPS and EI. Assessment of the construct of SPS is better served by analysis multidimensionally as opposed to unidimensional as evidence exists of variations of sensitivity within individuals (Smolewska et al.,2006; Sobocko & Zelenski,2015; Tra et al., 2022) as is evident within this study and others discussed within the literature. Many studies now suggest SPS be viewed continuously as opposed to dichotomously (Drndarvic et al., 2021; Lionetti et al., 2018).

**Practical Implications & Future Research**

Awareness of SPS across the sample was relatively high at 62.3%, however when consideration is given that this study's sample consists of psychology undergraduate students, mothers, fathers and primary caregivers and the mean age of the participants being 40 years old the expectation would be for the sample to indicate a greater awareness of SPS overall. Consideration must be given towards misidentification of SPS as being indicative of ASD's considering the symptom sharing characteristics of heightened arousal to external and internal stimuli (Acevedo et al., 2017; Liss et al., 2008) and how this arousal manifests from a behavioural and mental health perspectives in the future (Drndarvic et al., 2021). Future recommendations would be to target early years of the individual, caregivers, and educational providers to create a greater awareness of this trait temperament and the neurodiverse characteristics that define this trait. Further observational studies are required to investigate the manifestations of over stimulation in response to environmental sensitivity within sensory- processing sensitive individuals. Focussing on SPS individuals in early years, childhood, and adolescence, what these arousals look like, the management and outcomes for the individuals in the future. The potential subtle emotional antecedents which could potentially evoke arousal be it internally or externally within individuals with SPS would

warrant future studies within the area of emotion awareness and regulation within individuals with SPS to provide a clearer picture of mental and physical health outcomes.

Furthermore, the associations with poor mental health and SPS would warrant further investigation. While evidence exists of highly sensitive individuals who grew up in adverse environments being disproportionately affected by comorbidity rates (Aron, 2002; Boyce & Ellis, 2008; Jagiellowicz et al., 2016). Whereas those who grew up in highly supportive and lower stress environments possessing better health overall. From a developmental perspective the necessity to provide responsive care -giving to meet the needs of children has been widely researched. With resilience building being a key promotive factor to wellbeing and good mental health into adulthood (Belsky & Pluess, 2013). Given the research on environmental sensitivity and acknowledgements that those who are highly sensitive are disproportionately affected by aversive environments. Further research is required into the factors which may promote or prohibit the development of resilience in children who are sensory-processing sensitive into adolescence and adulthood with a focus on further analyses of the issues around Lower Sensory Threshold (LST) and Ease of Excitation (EOE) from a sensory and behavioural perspective . Further research involving a mixed methods approach on participants who are highly sensitive with a focus on children and adolescents would allow for a more in-depth investigation into SPS and the positive and negative aspects of this trait.

**Conclusion**

The current study has found that individuals who are highly sensitive have lower emotional intelligence than those who are not highly sensitive, however the Aesthetic sensitivity subscale predicts emotional intelligence, and no gender differences exist between male and female Sensory-processing scores. Evidence exists throughout the literature of the complexities of being highly sensitive, with the demands of modern society the facets/variables of SPS which can create advantages or disadvantages to the quality of life of

individuals who possess this trait has been explored. However much more work is required to gain a better understanding of SPS. With society becoming more aware of neurodivergences within the population, greater awareness of the broad spectrum of characteristics that fall under the neurodiverse umbrella must be given appropriate attention. With a view to mitigate against the effects of misidentifying similarly symptom disorder characteristics as a preventative measure against unnecessarily attempting to pathologizing many aspects of diversity. In turn promoting an adaptive approach to better physical and mental health in individuals who are Highly Sensitive and for others within the neurodiverse community. This study contributes to previous and emerging literature on SPS and EI and on the multidimensional concept of the Highly Sensitive Person.

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## Appendix 1

## Participant Information Leaflet

## Sensory Processing Sensitivity, Emotional Intelligence, and their Contribution to Individual Difference.

You are being invited to take part in a research study. Before deciding whether to take part, please take the time to read this document, which explains why the research is being done and what it would involve for you. If you have any questions about the information provided, please do not hesitate to contact me using the details at the end of this sheet.

***What is this study about?***

I am a final year student in the BA in Psychology programme at National College of Ireland. As part of our degree, we must carry out an independent research project.

For my project I aim to investigate whether people who are Highly Sensitive (HSP) have higher Emotional Intelligence (EI) than those who are not highly sensitive, to test the current theory that 15-20% of the population are Highly Sensitive and to establish if any gender differences exist in scores for (HSP).

My research project will be under the supervision of

Dr Conor Nolan, D. Psych.BAT

Assistant Professor in Psychology

National College of Ireland

***What will taking part in the study involve?***

If you decide to take part in this research, you will be asked to answer a couple of short questions, (it will not be necessary to provide your name), a Highly Sensitive Person scale and a Trait Emotional Intelligence questionnaire, via an online questionnaire in the format of Google forms. The study will take approximately 15 minutes or less. The online questionnaire is anonymous and at any time during the questionnaire you can withdraw your participation by exiting your browser. Once your questionnaire has been submitted it will not be possible to withdraw from the study due to the anonymous nature of Google forms.

***Who can take part?***

You can take part in this study if you are over the age of 18.

You cannot take part in this study is you have been told by a doctor that you have a diagnosis of dementia, or a problem with your memory or thinking that interferes with your day-to-day life.

***Do I have to take part?***

Participation in this research is voluntary; you do not have to take part, and a decision not to take part will have no consequences for you. If you do decide to take part, you can withdraw from participation at any time by exiting the browser.

Once you have submitted your questionnaire, it will not be possible to withdraw from the study, because the questionnaire is anonymous and individual responses cannot be identified.

***What are the possible risks and benefits of taking part?***

There are no direct benefits to you for taking part in this research. However, the information gathered will contribute to research that helps us to gain a further understanding of Sensory Processing Sensitivity.

No physical or psychological harm is foreseeable. However, this study may create a new or heightened awareness of the SPS trait within the participants themselves and people they are in contact with in their personal and professional lives who may possess this trait. Due to the subjective nature of experience some may experience mild distress, however the potential of this occurring would be minimal.

There is a small risk that some of the questions contained within the survey may cause minor distress for some participants. If you experience this, you are free to discontinue participation and exit the questionnaire. Contact information for relevant support services is also provided at the end of the questionnaire.

***Will taking part be confidential and what will happen to my data?***

The questionnaire is anonymous, it is not possible to identify a participant based on their responses to the questionnaire. All data collected for the study will be treated in the strictest confidence.

Responses to the questionnaires will be fully anonymised and stored securely in a password protected/ encrypted file on the researcher's computer. Data will be retained and managed in accordance with the NCI data retention policy. Note that anonymised data may be archived on an online data repository and may be used for secondary data analysis.

***What will happen to the results of the study?***

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland.

***Who should you contact for further information?***

Researcher; Hilary O'Neill

Email; x19213506@student.ncirl.ie

Supervisor; Dr Conor Nolan, D.Psych.BAT

Assistant Professor in Psychology

National College of Ireland.

Email; conor.nolan@ncirl.ie

## Appendix 2

## Consent Form

In agreeing to participate in this research I understand the following:

- The method proposed for this research project has been approved in principle by the Departmental Ethics Committee, which means that the committee does not have concerns about the procedure itself as detailed by the student. It is, however, the above-named student's responsibility to adhere to ethical guidelines in their dealings with participants and the collection and handling of data.

- If you have any concerns about participation, I understand that I may refuse to participate or withdraw at any stage by exiting my browser.

- I understand that once my participation has ended, that I cannot withdraw my data as it will be fully anonymised.

- I have been informed as to the general nature of the study and agree voluntarily to particate.

- All data from the study will be treated confidentially. The data from all participants will be compiled, analysed, and submitted in a report to the Psychology Department in the School of Business.

- I understand that my data will be retained and managed in accordance with the NCI data retention policy, and that my anonymised data may be archived on an online data repository and may be used for secondary data analysis. No participants data will be identifiable at any point.

- At conclusion of my participation, any questions or concerns I have will be fully addressed.

  Please tick this box if you have read and agree with all of the above information.

  Please tick this box to indicate that you are providing informed consent to particate in the study.

## Appendix 3

## Debriefing Form

This study aims to gain a greater understanding of Sensory Processing Sensitivity and its relationship to Emotional Intelligence. To determine if SPS is present within 15-20% of the sample and if any gender differences exist with Sensory Processing Sensitivity scores. This study additional aims to determine the level of awareness of SPS within the sample.

**How was this tested?**

In this study you were asked to answer two questions, complete a questionnaire The Highly Sensitive Person scale (HSPS) and The Trait Emotional Intelligence Questionnaire- Short Form (TEIQue-SF).

**Hypotheses for this study.**

We expect that 15-20% of the sample will be highly sensitive and that those who are highly sensitive will display higher emotional intelligence scores. Furthermore, no gender differences exist between SPS scores and (those with an awareness of SPS will possess higher Emotional Intelligence scores)

**Why is this study important?**

Your Participation in this study will contribute to gaining a greater understanding of the SPS trait and some of the characteristics that define this trait. Additionally, it will give an insight into people's awareness of this trait. Determining if there is a need to create a greater awareness of diversity within the generally population, with the potential to achieve better outcomes for individuals through implication of strategies with special consideration to childcare providers, school, and educational setting and from the caregivers of children who are highly sensitive.

**If you would like to know more about this study, Sensory Processing Sensitivity, Emotional Intelligence or if you would like an interpretation of your own scores, you are welcome to contact the researcher.**

A copy of the study will be available from The National College of Ireland.

Contact details of the researcher are

Hilary O'Neill x19213506@student.ncirl.ie

Thank you for your participation.

If you would like to know more about **Sensory Processing Sensitivity** and **The Highly Sensitive Person,** go to **hsperson.com**

If for any reason you may experience distress after taking part in this study the following support group below can be contacted

## Appendix 4

## Scales, test, and Questions.

### Questionnaire (HSP Scale)

INSTRUCTIONS: This questionnaire is completely anonymous and confidential. Answer each question according to the way you feel, using the following scale:

**1 2 3 4 5 6 7**

**Not at all Moderately Extremely**

----1. Are you easily overwhelmed by strong sensory input?

----2. Do you seem to be aware of subtleties in your environment?

----3. Do other people's moods affect you?

----4. Do you tend to be more sensitive to pain?

----5. Do you feel yourself needing to withdraw during busy days, into bed or into a darkened room or any place where you can have some privacy and relief from stimulation?

----6. Are you particularly sensitive to the effects of caffeine?

----7. Are you easily overwhelmed by things like bright lights, strong smells, coarse fabrics, or sirens close by?

----8. Do you have a rich, complex inner life?

----9. Are you made uncomfortable by load noises?

---10. Are you deeply moved by the arts or music?

---11. Does your nervous system sometimes feel so frazzled that you just have to go off by yourself?

---12. Are you conscientious?

---13. Do you startle easily?

---14. Do you get rattled when you have a lot to do in a short amount of time?

---15. When people are uncomfortable in a physical environment do you tend to know what needs to be done to make it more comfortable (like changing the lightening or the seating)?

---16. Are you annoyed when people try to get you to do too many things at once?

---17. Do you try hard to avoid making mistakes or forgetting things?

---18. Do you make a point to avoid violent movies and TV shows?

---19. Do you become unpleasantly aroused when a lot is going on around you?

---20. Does being very hungry create a strong reaction in you, disrupting your concentration or mood?

---21. Do changes in your life shake you up?

---22. Do you notice and enjoy delicate or fine scents, tastes, sounds, works of art?

---23. Do you find it unpleasant to have a lot going on at once?

---24. Do you make it high priority to arrange your life to avoid upsetting or overwhelming situations?

---25. Are you bothered by intense stimuli, like loud noises or chaotic scenes?

---26. When you must compete or be observed while performing a task, do you become so nervous or shaky that you do much worse than you would otherwise?

---27. When you were a child, did parents or teachers seem to see you as sensitive or shy?



**The scoring procedure for The Highly Sensitive person scale.**

Researcher instructions:

To score each subfactor, use the following items:

EOE: 3, 4, 13, 14, 16, 17, 20, 21, 23, 24, 26, 27 (sum and divide by 12)

LST: 6, 7, 9, 18, 19, 25 (sum and divide by 6)

AES: 2, 5, 8, 10, 12, 15, 22 (sum and divide by 7)

# TEIQue-SF

**Trait Emotional Intelligence Questionnaire-Short Form**

*Instructions:* Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers. There are seven possible responses to each statement ranging from 'Completely Disagree' (number 1) to 'Completely Agree' (number 7).

**1 . . . . . 2 . . . . . 3 . . . . . 4 . . . . . 5 . . . . . 6 . . . . . 7**

**Completely Disagree** **Completely Agree**

1. Expressing my emotions with words is not a problem for me. 1 2 3 4 5 6 7
2. I often find it difficult to see things from another person's viewpoint. 1 2 3 4 5 6 7
3. On the whole, I'm a highly motivated person. 1 2 3 4 5 6 7
4. I usually find it difficult to regulate my emotions. 1 2 3 4 5 6 7
5. I generally don't find life enjoyable. 1 2 3 4 5 6 7
6. I can deal effectively with people. 1 2 3 4 5 6 7
7. I tend to change my mind frequently. 1 2 3 4 5 6 7
8. Many times, I can't figure out what emotion I'm feeling. 1 2 3 4 5 6 7
9. I feel that I have a number of good qualities. 1 2 3 4 5 6 7
10. I often find it difficult to stand up for my rights. 1 2 3 4 5 6 7
11. I'm usually able to influence the way other people feel. 1 2 3 4 5 6 7
12. On the whole, I have a gloomy perspective on most things. 1 2 3 4 5 6 7
13. Those close to me often complain that I don't treat them right. 1 2 3 4 5 6 7
14. I often find it difficult to adjust my life according to the circumstances. 1 2 3 4 5 6 7
15. On the whole, I'm able to deal with stress. 1 2 3 4 5 6 7
16. I often find it difficult to show my affection to those close to me. 1 2 3 4 5 6 7
17. I'm normally able to "get into someone's shoes" and experience their emotions. 1 2 3 4 5 6 7
18. I normally find it difficult to keep myself motivated. 1 2 3 4 5 6 7
19. I'm usually able to find ways to control my emotions when I want to. 1 2 3 4 5 6 7
20. On the whole, I'm pleased with my life. 1 2 3 4 5 6 7
21. I would describe myself as a good negotiator. 1 2 3 4 5 6 7
22. I tend to get involved in things I later wish I could get out of. 1 2 3 4 5 6 7
23. I often pause and think about my feelings. 1 2 3 4 5 6 7

24. I believe I'm full of personal strengths. 1 2 3 4 5 6 7

25. I tend to "back down" even if I know I'm right. 1 2 3 4 5 6 7

26. I don't seem to have any power at all over other people's feelings. 1 2 3 4 5 6 7

27. I generally believe that things will work out fine in my life. 1 2 3 4 5 6 7

28. I find it difficult to bond well even with those close to me. 1 2 3 4 5 6 7

29. Generally, I'm able to adapt to new environments. 1 2 3 4 5 6 7

30. Others admire me for being relaxed. 1 2 3 4 5 6 7

Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF). This 30-item form includes two items from each of the 15 facets of the TEIQue. Items were selected primarily on the basis of their correlations with the corresponding total facet scores, which ensured broad coverage of the sampling domain of the construct. The –SF can be used in research designs with limited experimental time or wherein trait EI is a peripheral variable. Although it is possible to derive from it scores on the four trait EI factors, in addition to the global score, these tend to have somewhat lower internal consistencies than in the full form of the inventory. The –SF does not yield scores on the 15 trait EI facets.

Reference for the TEIQue-SF: Petrides, K. V. (2009). Psychometric properties of the Trait Emotional Intelligence Questionnaire. In C. Stough, D. H. Saklofske, and J. D. Parker, Advances in the assessment of emotional intelligence. New York: Springer. DOI: 10.1007/978-0-387-88370-0_5

## Scoring procedure for the TEIQue-SF

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tei_14  (7=1)  (6=2)  (5=3)
   (3=5)  (2=6)  (1=7)  .
EXECUTE .

COMPUTE tot_tei = (tei_1
+tei_2+tei_3+tei_4+tei_5+tei_6+tei_7+tei_8+tei_9+tei_10+tei_11+tei_12+tei_13+tei_14+tei_
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+tei_28+tei_29+tei_30)/30 .
EXECUTE .

*Factor scores .
COMPUTE well_being = (tei_5+ tei_20+ tei_9 +tei_24+ tei_12 +tei_27)/6.
EXECUTE .
COMPUTE self_control = (tei_4+ tei_19+ tei_7 +tei_22 +tei_15+ tei_30)/6 .
EXECUTE .
COMPUTE emotionality = (tei_1+ tei_16+ tei_2 +tei_17+ tei_8+ tei_23+ tei_13+ tei_28)/8  .
EXECUTE .
COMPUTE sociability = (tei_6 +tei_21+ tei_10+ tei_25 +tei_11+ tei_26)/6 .
EXECUTE .

var lab tot_tei 'global trait emotional intelligence'  .

TITLE 'well_being' .
RELIABILITY
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**Demographic Question.**

**Gender**

What is your gender?

- Male
- Female

**General awareness of Sensory Processing Sensitivity Question.**

A highly sensitive person (HSP) is someone who possesses a sensitivity to physical, emotional, environmental, or social stimuli. Eg they are more sensitive to pain, hunger, lights, noises, emotions within themselves and within others.

From this statement

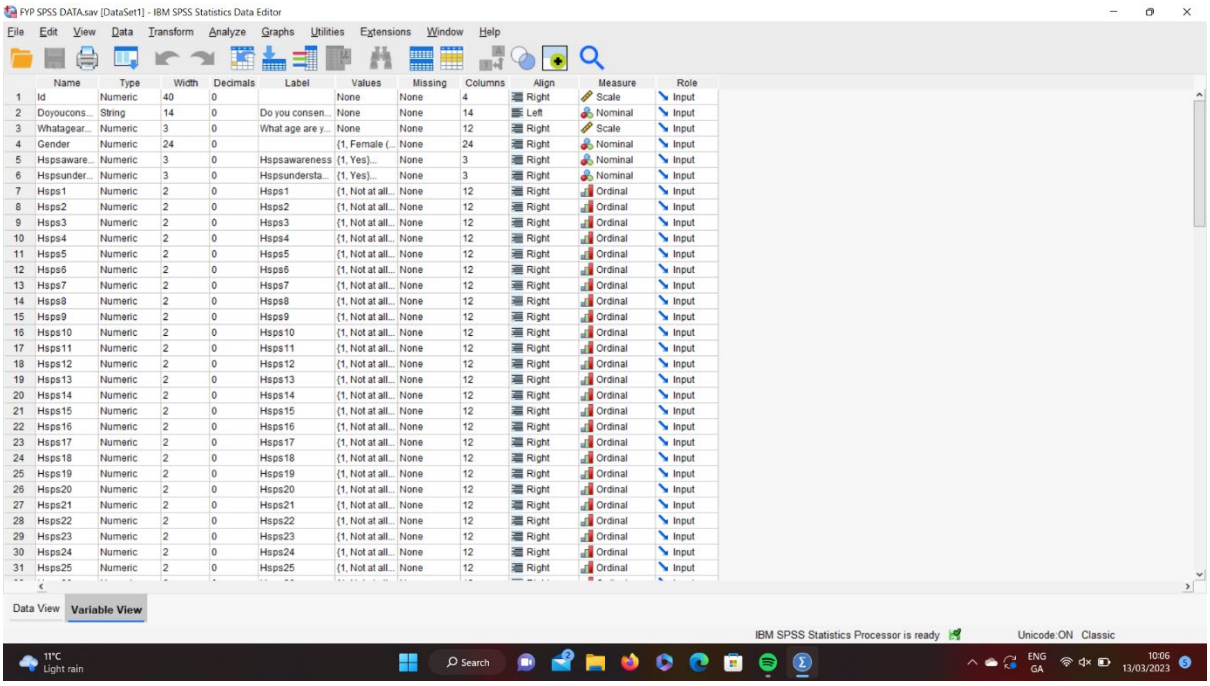
- Would you have had previous knowledge of the concept of the Highly Sensitive Person, prior to taking this study.

  Yes or No.

- From your understanding of the Highly Sensitive Person. Do you think this sensitivity is present from birth?

  Yes or No.

# Appendix 5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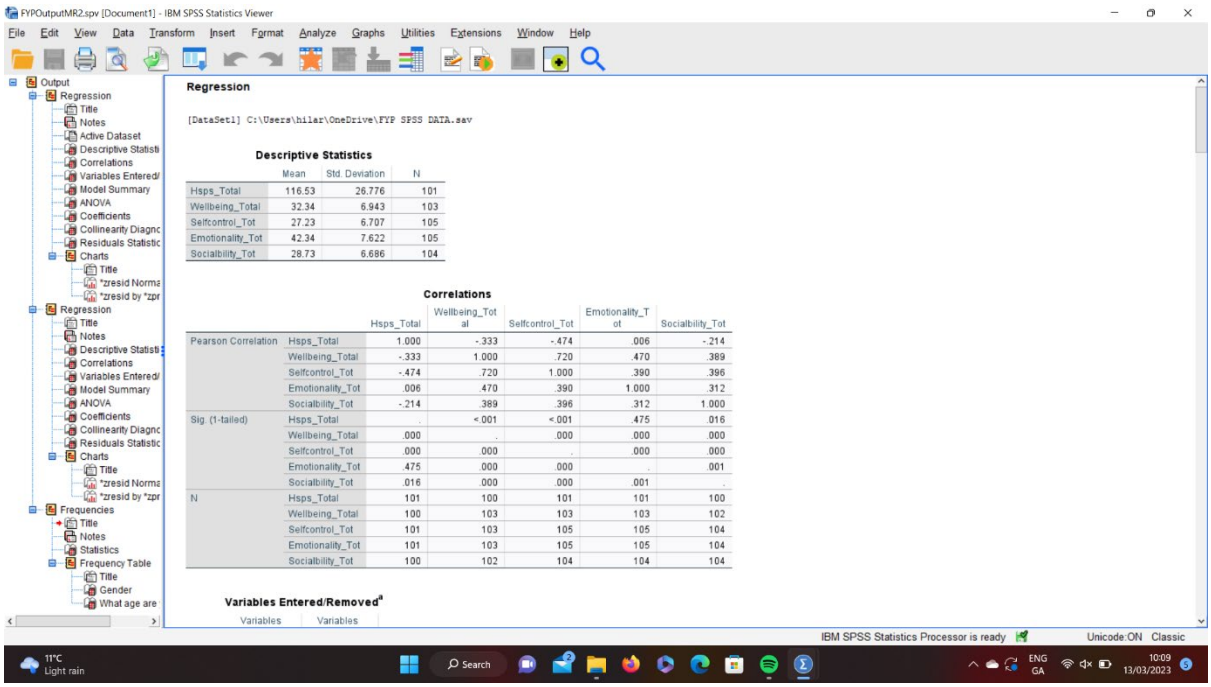
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