Dear Fellow Researcher,

Thank you for your interest in conducting research on sensory processing sensitivity (SPS, which should not be confused with “Sensory Processing Disorder” or “Sensory Integration Disorder”).

First, you might want to look at this literature review (Aron et al., 2012). Although it is 6 years old, and there have been a number of important studies published since then, this review still covers the basics pretty well. A new one should be out in 2019. It will be posted, along with other relevant research, as it is published, at www.HSPerson.com, Research tab.

Here are some tips you may find useful when doing research on SPS:

STANDARD 27-ITEM HSP SCALE

The 27 items of the standard HSP Scale used in research is shown in Aron & Aron (1997), Table 1. You can also download the scale, including standard instructions, and rating scale, directly from HSPerson.com, Research tab, then select “Measurement Scales for Researchers.” All items are scored in the same direction (there are no reverse items), and the usual way of scoring is to take the mean. (NOTE: This research version is not the same as the true-false “self-test” on the web site or in the book for the general public [Aron, 1996], which is not intended for research purposes and cannot be printed in anything for sale.)

TRANSLATIONS IN OTHER LANGUAGES:

The HSP Scale has been translated for research studies in several languages (with more languages constantly being added). If you are planning a study using the scale in a language other than English, we suggest you search in Google Scholar (Advanced search) for studies with all of the words [insert the name of the language you are searching for such as “Dutch”], with the exact phrase [Highly Sensitive Person Scale], and with at least one of the words [“translate” “translation”]. (It may also be wise to do this again with versions of the exact phrase of “HSP Scale” and again with the exact phrase “Highly Sensitive Person (HSP) Scale.”) If you find one in your language, we of course suggest that you should check if it was both translated and back translated and seemed well done.

SHORT SCALE:

a. Here is a 12-item version (Pluess, 2013) that has been used in several studies:

- Do you seem to be aware of subtleties in your environment?
- Are you easily overwhelmed by things like bright lights, strong smells, coarse fabrics, or sirens close by?
- Do you have a rich, complex inner life?
- Do you get rattled when you have a lot to do in a short amount of time?
- Are you deeply moved by the arts or music?
- Are you annoyed when people try to get you to do too many things at once?
- Do you make a point to avoid violent movies and TV shows?
- Do you find it unpleasant to have a lot going on at once?
- Do changes in your life shake you up?
- Do you notice and enjoy delicate or fine scents, tastes, sounds, works of art?
- Are you bothered by intense stimuli, like loud noises or chaotic scenes?
- 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?

SCALE FOR SCHOOL-AGED CHILDREN:

A similar 12-item self-report scale for school-aged children, with simpler language, has been developed and strongly validated (Pluess et al., 2018), and is available in that article.
CONTROLLING FOR NEGATIVE AFFECTIVITY

Whether using only the 12-item or entire scale or any other subset, we suggest you consider controlling for trait negative affectivity (or neuroticism). (The major exception would be if you are testing an interaction of SPS with early childhood experiences.) This partialling out of negative affectivity is because many of the HSP Scale items have negative wordings and involve negative affect. This captures the reports of highly sensitive persons that they are especially bothered by certain things. But this negative affect can also be the result of trait negative affectivity. However, we also recommend conducting the) without controlling for negative affectivity and reporting results both ways. (Some studies have found it makes a difference, others have not found much difference.

To partial out trait negative affectivity, you can use a standard Big-5 Neuroticism scale or any short measure. We have a three-item measure we often use that correlates well with other measures and gets directly at the key ideas. The items are: “Are you a tense or worried person by nature,” “Are you prone to fears?” and “Are you prone to depression?” (In fact, even a two-item version without the “Are you prone to fears” works quite well.) Or you might want to use instead the Beck depression inventory on its own (as in Liss et al., 2005). By focusing on the depression aspect of negative affectivity, you avoid anxiety items, which may be a problem because sensitive persons do look ahead to possible consequences, giving them another reason to seem anxious.

ABOUT CATEGORIZING YOUR SAMPLE INTO GROUPS OR USING CUTOFFS.

There is substantial evolutionary theory suggesting that the trait of sensitivity or responsiveness in any species will always be found only in a minority (e.g., Wolf et al., 2008). And several studies using the standard HSP Scale have found clear divisions into groups with highly sensitive individuals being those who score in the top 15 to 30% depending on the study. Early studies suggested just two groups (highly sensitive and average sensitive), but the most recent research, conducted in large samples of both children and adults, supports three groups (high, middle, and low—or to use their metaphor, orchids, tulips, and dandelions; see Lionetti et al., 2018; Pluess, et al., 2018). The various studies do provide cutoffs that differ somewhat according to the sample studied. And in much of the original SPS research, analyses dichotomized the sample based on finding a break point in the data at about 20-25%, often depending on the type of sample (e.g., psychology majors perhaps higher).

However, since then thinking in statistics (starting largely with Preacher et al., 2005, now widely cited as the standard) suggests that even if there are clear categories on a variable that is measured on a continuous measure (as SPS is), it is best to analyze data using the score from the continuous measure. The reason for that is that any self-report or even behavioral or neutral measure has some noise in it. Thus, if you use a cutoff, you will mistakenly put some participants in the wrong category (and using the continuous measure means that those who score especially high or low are also weighted for being especially likely to be in the correct category). Bottom line: We no longer recommend using cutoffs, but rather to do all analyses treating SPS as a continuum.

ABOUT GENDER DIFFERENCES

There appear to be no differences in the number of males and females born with this trait, and only those items that showed no significant gender difference in our initial samples were included in the HSP Scale. Yet men tend to score lower than women on the overall scale. Given that this appears to be a genetic trait that is not associated with gender, we suspect this gender bias is for cultural reasons, and unless that is your specific interest, we suggest not making too much of correlations with gender. (Although, it may eventually be found that the trait interacts in interesting ways with male physiology.) Thus, you may also want to consider controlling for gender in your major analyses.

EXAMPLE Ms AND SDs FOR THE FULL SCALE FROM SOME PREVIOUS SAMPLES

• In a US student sample (Stony Brook University undergraduates in introductory psychology; N=904; 58% female): M=4.09, SD=.83
• In a U.S. Mechanical Turk sample (N=357; 46% female): M=3.95, SD=1.06.
• In a German community sample (N=898; 73% women): M=4.54; SD=.94 (Female M=4.67; Male 4.20)

SOME IMPORTANT CONCEPTUAL ISSUES TO CONSIDER WHEN EVALUATING RESULTS

• We (Aron, et al., 2012) see SPS as an innate strategy to process thoroughly information from the environment, relating it to past knowledge (not necessarily consciously) before acting, as opposed to a strategy of acting quickly but without much processing. Sensitive or reflective versus bold or impulsive. Thus it is a normal variation in human temperament (a variation found in many if not most other species) that has advantages and disadvantages as a function of the environment.
POSSIBLE FACETS OF SENSITIVITY AS SUBSCALES WITHIN THE HSP SCALE

Originally, the HSP scale was designed to assess a one-dimensional construct of sensitivity—Sensory Processing Sensitivity (Aron et al, 1997). However, several later studies found that data were more consistent with the existence of two, three, or four factors—not surprisingly given the wide variety of topics covered by the scale, suggesting that the trait underlies many facets as a style of dealing with the environment. And until very recently, the most consistent result (e.g., Smolewska et al., 2006) was a three-factor solution with the following subscales: (a) Ease of Excitation (EOE), that is, being easily overwhelmed by external and internal stimuli (e.g., negative response to “having a lot going at once” or performing worse at a task if observed); (b) Aesthetic Sensitivity (AES), capturing aesthetic awareness (e.g., being deeply moved by arts and music); and (c) Low Sensory Threshold (LST), reflecting unpleasant sensory arousal to external stimuli (e.g., reaction to bright lights and loud noises). However, the typically moderate but significant correlations between the three HSP factors suggested that there may indeed exist a general trait of SPS in addition to the three subscales.

Thus, most recently, in several large samples, Lionetti et al. (2018) compared alternative HSP Scale factorial models testing for the possibility of a bi-factor solution, a relatively new but widely influential approach to situations like this. And indeed, Lionetti et al. found, in each sample, the bifactor solution was a significantly better fit than the one, two, or three-factor solutions. (For parallel results with the child HSP Scale, see Pluess et al., 2018). These results suggest that the HSP Scale reflects both three independent scales as well as a general, overarching sensitivity factor across all items.

Since the general factor is most directly related to the overall construct of SPS (and also to reduce issues of having to consider adjusting significance levels for multiple analyses), we recommend using the overall scale exclusively rather than analyzing the relation of individual facets to variables of interest. This is especially true since AES (sometimes found to correlate better than the other two with more positive variables, such as well being) may be a single facet only because of almost all of the positively worded items in the scale, and does not seem to be mainly about “aesthetic sensitivity.” Indeed, it may better capture the deep processing of information.

Best of luck with your research,

Elaine and Art Aron
References


