

Multisensory Sensitivity Supplemental Materials

Table S1. The eigenvalues for 10 latent variables using 80 items from four MSS-related surveys (using exploratory factor analysis) (N = 614).

	Eigenvalue	Difference	Proportion	Cumulative
1	20.97	17.63	0.262	0.262
2	3.34	0.39	0.042	0.304
3	2.94	0.44	0.037	0.341
4	2.51	0.23	0.031	0.372
5	2.28	0.16	0.028	0.400
6	2.11	0.33	0.026	0.427
7	1.79	0.07	0.022	0.450
8	1.72	0.10	0.022	0.471
9	1.62	0.03	0.020	0.491
10	1.59	0.14	0.020	0.511

Note: the four surveys included: AASP, Adolescent/Adult Sensory Profile; ASQ subscale, Adult Sensory Questionnaire sensitivity to sensory stimuli; HSPS, Highly Sensitive Person Scale; SSAS, Somatosensory Amplification Scale.

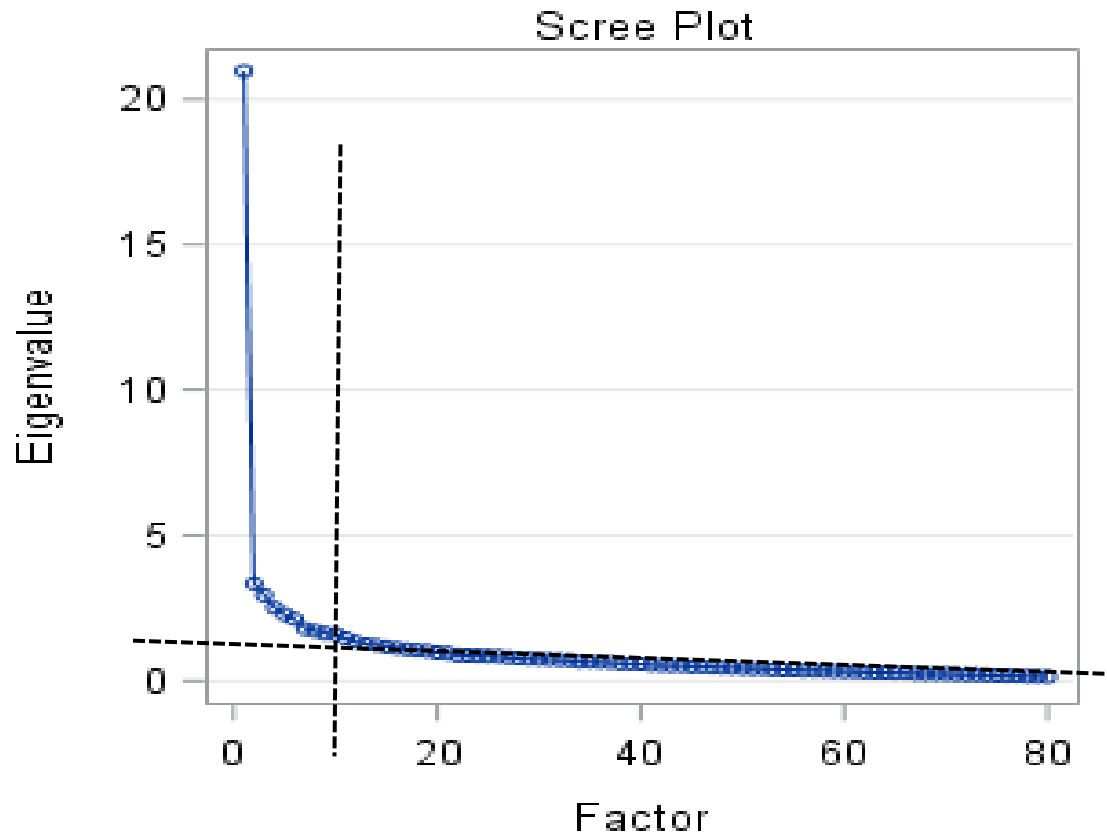


Figure S1. Scree plot of eigenvalues. Note: the cross of the dash lines corresponds to the solution of 10 latent variables, approximating where the change in eigenvalues first begins to notably deviate from the baseline noise.

Multisensory Sensitivity Supplemental Materials

Table S2. Inter-factor correlations between the 10 latent factors identified using 80 items from 4 MSS-related surveys† (N=614).

Latent Factors			1	2	3	4	5	6	7	8	9
Core	1	Smell/Tactile Sensitivity	1								
Core	2	Food / Texture Sensitivity	0.24	1							
Core	3	Sound/Startle Sensitivity	0.39	0.21	1						
Core	4	Internal Body Sensitivity	0.28	0.21	0.31	1					
Assoc	5	Noise-Distracton	0.28	0.13	0.41	0.15	1				
Assoc	6	Vestibular	0.35	0.18	0.37	0.24	0.16	1			
Assoc	7	Aesthetic	0.13	-0.01	0.22	0.14	0.20	0.07	1		
Assoc	8	Easily stressed	0.23	0.19	0.37	0.26	0.32	0.28	0.11	1	
Assoc	9	Dislike crowds	0.33	0.22	0.39	0.20	0.34	0.31	0.09	0.33	1
Assoc	10	Fear	0.11	0.11	0.07	0.10	0.07	0.08	0.05	0.07	0.03

† Note: the four Surveys included: AASP, Adolescent/Adult Sensory Profile; ASQ subscale, Adult Sensory Questionnaire sensitivity to sensory stimuli; HSPS, Highly Sensitive Person Scale; SSAS, Somatosensory Amplification Scale. Correlations > 0.20 are bolded.

Multisensory Sensitivity Supplemental Materials

Table S3. Summary participant characteristics and survey responses (Mean (SD) or Proportion, %) used to assess the potential new items to modify the original SSAS.

Total (observed range)	All (n=647)	Women (n=463)	Men (n=183)	Raw-p†	Adjusted-p†	Effect size † (95% CI)
Age (18-91 yrs)	48.3 (20.4)	47.4 (20.2)	50.7 (20.8)	0.07	0.91	-0.16 (-0.34, 0.01)
BMI (16.5-57.3 kg/m²)	27.0 (6.5)	26.8 (6.8)	27.4 (5.9)	0.26	1.0	-0.10 (-0.27, 0.07)
Race/Ethnicity						
Caucasian (%)	92.7%	92.9%	92.4%	0.82	1.0	0.04 (-0.32, 0.40)
non-Hispanic (%)	97.2%	98.0%	95.4%	0.08	1.0	0.46 (-0.07, 1.0)
Marital status						
Never married (%)	30.5%	31.8%	27.3%	0.27	1.0	0.12 (-0.09, 0.33)
Current employment status						
Employed (%)	58.4%	59.4%	55.7%	0.40	1.0	0.08 (-0.11, 0.27)
Education level						
College or higher (%)	81.9%	80.8%	84.7%	0.24	1.0	-0.15 (-0.41, 0.10)
Pain status						
Current Pain incidence (%)	58.7%	57.0%	63.4%	0.16	1.0	-0.15 (-0.34, 0.05)
<i>Intensity‡ (mean, SD)</i>	2.4 (2.3)	2.6 (2.4)	1.8 (1.7)	< 0.001	0.01	0.35 (0.19, 0.53)
Worst 7-day Pain incidence (%)	93.5%	93.1%	94.5%	0.5	1.0	-0.14 (-0.54, 0.27)
<i>Intensity‡ (mean, SD)</i>	3.6 (2.3)	3.4 (2.2)	3.7 (2.4)	0.16	1.0	-0.13 (-0.30, 0.04)
Average 7-day Pain incidence (%)	78.6%	77.3%	82.0%	0.19	1.0	-0.16 (-0.40, 0.08)
<i>Intensity‡ (mean, SD)</i>	2.0 (1.6)	1.7 (1.5)	2.1 (1.7)	0.02	0.26	-0.26 (-0.43, 0)

Notes: BMI, Body Mass Index; PSQ, Pain Sensitivity Questionnaire; MSAS, Multisensory Amplification Scale. Significant values are bolded.

† Sex-differences comparisons adjusted by Bonferroni Correction; Effect size is positive when values are higher for women than men. One subject did not report sex.

‡ Mean pain intensity of those reporting pain > 0 for current, worst in past 7-days or average in past 7-days.

Multisensory Sensitivity Supplemental Materials

Table S4. Inter-item correlations for the 12-item Multisensory Amplification Scale^a (N=647)

Sensitivity item content, briefly:	1	2	3	4	5	6	7	8	9	10	11
1. smoke, pollutants	1.0										
2. body awareness	0.275	1.0									
3. sudden loud noise	0.263	0.238	1.0								
4. hot or cold	0.322	0.260	0.337	1.0							
5. hunger	0.185	0.297	0.204	0.374	1.0						
6. strong perfumes	0.361	0.171	0.279	0.261	0.097	1.0					
7. food textures	0.096	0.156	0.263	0.238	0.139	0.123	1.0				
8. certain fabrics	0.132	0.210	0.271	0.255	0.255	0.277	0.380	1.0			
9. bright lights	0.180	0.208	0.409	0.322	0.193	0.294	0.282	0.331	1.0		
10. background sound	0.213	0.204	0.370	0.265	0.263	0.272	0.161	0.303	0.378	1.0	
11. sunshine	0.154	0.157	0.272	0.303	0.127	0.189	0.154	0.158	0.453	0.261	1.0
12. types of clothing	0.190	0.241	0.248	0.283	0.212	0.288	0.344	0.581	0.332	0.412	0.236

^aPearson Correlation Coefficients.

Note: all items were significantly correlated but values > 0.2 are highlighted in bold and > 0.3 shaded to better characterize which items are most closely related.

Multisensory Sensitivity Supplemental Materials

Table S5. Summary participant characteristics (Mean (SD) or Proportion, %) for the separate, test-retest reliability study cohort.

Total (observed range)	All (n=158)	Women (n=138)	Men (n=20)	Raw p-value	Adjusted- p
Age (18 - 70 yrs)	25.9 (11.8)	26.2 (12.2)	24.3 (8.4)	0.98	1.0
Race/Ethnicity					
Caucasian (%)	89.2%	89.9%	85%	0.51	1.0
non-Hispanic (%)	89.2%	89.1%	90%	0.91	1.0
Education level					
College or higher, (%)	43.7%	44.2%	40%	0.72	1.0
Pain incidence (%)					
Current pain>0	65.8%	65.9%	65%	0.93	1.0
Current pain≥3	18.4%	18.1%	20%	0.84	1.0
Pain intensity (if pain > 0)					
Current pain (0 - 10)	2.3 (2.1)	2.2 (1.9)	3.3 (3.0)	0.20	1.0
Worst pain (0 - 9)	3.9 (2.2)	3.9 (2.2)	4.4 (2.3)	0.30	1.0