E-MOTION - potential of hypersensitivity
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High sensitivity identification. The questionnaire of Sensory Processing Sensitivity in Children
A psychometric evaluation

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Sensory Processing Sensitivity: E-MOTION proposed Dimensions

Physical Scale

Emotional Scale

Interpersonal Scale

Cognitive Scale

Data analysis procedure:

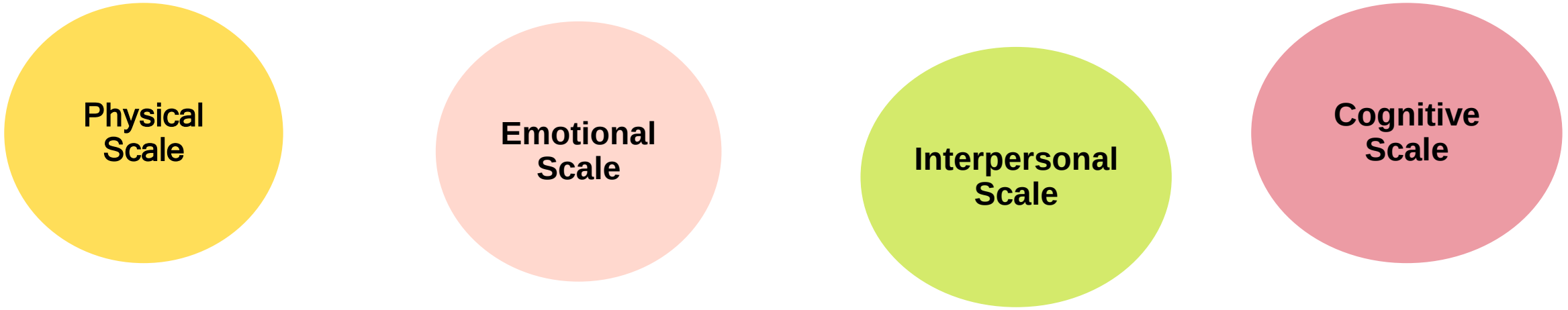
- Data base for each target group from each partner were facilitated by IT WSEI
- Descriptive indexes for each sub-scales
- EFA, psychometric indexes (Cronbach, Guttman 6 and Omega indexes were computed for each subscales)
- IRT model were run over subscales for each target group.
- Discriminant and Convergent validity were run with EAS, CBQ and HSC.
- Percentile Criteria adopted for screening 95 and 99 Percentile

- Four dimensions measuring SPS: physical scale, emotional scale, interpersonal scale and cognitive scale.
- Consistently showed two sub-dimensions was found in each subscales something that was not predicted by our model.
- Polish sample was used for pilot testing - first items selections - and for the final testing – second round for cleaning items -
- R cran and ULLRtoolbox were used for the analysis generating an script of 2206 lines for the whole analysis.

- Data analysis for sub-scales showed a consistent bi-factor structure in each dimensions.
- New data collected with the final cleaning instrument will change the bi-factor structure to one dimension solution for each sub-scale as it was assumed in theoretical model.
- CFAs were done but no one model fit a solution for testing construct validity. So we need to increase the sample in each version for testing a possible transcultural stability of the theoretical Model assumed.
- IRT models were run over Polish sample and items were removed due to zero frequency responses, or odds Items Characteristic Plot (ICP) indicating problems on the measurement scales (1 to 7) this need to be revised in order to get proper plot covering the range of the trait.
- Screening cut off point percentile criteria were assumed 90% possible HSC and 95% probably a HCS.

Sensory Processing Sensitivity:

E-MOTION proposed Dimensions



Physical Scale

Teachers preschool items

it1	Has bad noise tolerance
it2	Finds intense lights unpleasant
it3	Avoid being in the bright sun
it4	Badly tolerates tags, scratching materials
it5	Dislikes certain food textures (e.g. diluted, pasty, lumpy)
it6	Perceives some flavors very intensively
it7	If experiences something intensely, complains of pain (e.g. headache, stomach ache)
it8	More often than other children, signals a need for rest
it9	Badly tolerates dirt, wetting, etc. on clothing or on the hands
it10	When many things happen at once, is tired more than other children
it11	Easily identifies small changes (or modifications) in the environment/surroundings
it12	Often complains of pain for no apparent reason

Emotional Scale
Teachers preschool items

it1	Has a special loathing for insects, e.g. fly, gnat, spider
it2	Has a tendency to pessimistic / unfavorable course of events
it3	Experiences art very much, e.g. is moved by movies and music
it4	Has a tendency to accumulate emotions
it5	It's hard to control strong emotions
it6	Experiences emotions intensely
it7	Doesn't need much to cry, hysteria
it8	Fatigue is manifested by aggression
it9	When many things happen at once, it stresses him/her more than other children
it10	Needs more time to feel comfortable in a new place
it11	Once disappointed, it avoids similar situations, places and events for a long time

Interpersonal Scale

Teachers preschool items

it1	Experiences conflicts with peers particularly intensely and for a long time
it2	Feels guilty even when there is no reason to do so
it3	Reveals some difficult situations and begins to talk about them after a long time
it4	In relations with others, she/he seems shy
it5	Doesn't like to be observed
it6	Blocks himself/herself when is the center of attention
it7	Reacts disproportionately/exaggerated to criticisms

Cognitive Scale
Teachers preschool items

it1	Jokes in an intelligent way
it2	Uses rich vocabulary beyond his age
it3	Tries to perform the task entrusted by the teacher with great care
it4	Is an "expert" in some area of
it5	Can surprise you with information / knowledge
it6	In the face of a new task, analyzes all potential scenarios, anticipating difficulties and threats
it7	A slight failure causes the withdrawal of many activities that have been undertaken without any difficulty
it8	Before starts taks, asks a lot of questions
it9	Is creative

Teachers preschool sub-scales

TEACHER PRESCHOOL								
	P25	P50	P75	P90	P95	P99		
PHS_T	2	3	4	4	5	6		
EMS_T	3	3	4	5	5	6		
INTS_T	2	3	4	5	5	6		
COGS_T	3	3	4	5	5	6		
TEM_T	3	3	3	3	4	4		
HSChpl_T	3	3	3	4	4	5		
	PHS_T	EMS_T	INTS_T	COGS_T	HSChpl_T	EMOC_T	ACT_T	SOCI_T
PHS_T								
EMS_T	0,67***							
INTS_T	0,57***	0,74***						
COGS_T	0,34***	0,28***	0,07					
HSChpl_T	0,71***	0,59***	0,53***	0,35***				
EMOC_T	0,37***	0,52***	0,36***	0,29***	0,40***			
ACT_T	0,28***	0,40***	0,30***	0,12**	0,26***	0,41***		
SOCI_T	0,31***	0,43***	0,41***	0,06	0,26***	0,46***	0,65***	
SHY_T	-0,16***	-0,22***	-0,11*	-0,13**	-0,25***	-0,43***	-0,14***	-0,12**
			Alfa	G.6	Omega.J			
		PHS	0,957	0,984	0,811			
		EMS	0,956	0,983	0,823			
		INTS	0,96	0,986	0,809			
		COGS	0,952	0,984	0,832			
		HSChpl	0,928	0,973	0,724			

Physical Scale

Teachers Early childhood items

it1	Perceives some flavors very intensively
it2	Has a particularly sensitive sense of smell
it3	If experiences something intensely, complains of pain (e.g. headache, stomach ache)
it4	More often than other children, signals a need for rest
it5	Badly tolerates dirt, wetting, etc. on clothing or on the hands
it6	When many things happen at once, is tired more than other children
it7	Easily identifies small changes (or modifications) in the environment/surroundings

Emotional Scale

Teachers early childhood items

it1	Has a tendency to pessimistic / unfavorable course of events
it2	Experiences art very much, e.g. is moved by movies and music
it3	Has a tendency to accumulate emotions
it4	It's hard to control strong emotions
it5	Experiences emotions intensely
it6	Doesn't need much to cry, hysteria
it7	Fatigue is manifested by aggression
it8	When many things happen at once, it stresses him/her more than other children

Interpersonal Scale

Teachers early childhood items

it1	Needs additional incentives(stimulus) to get involved in the group
it2	In a group where a lot is going on, it seems to be temporarily absent
it3	Badly tolerates time pressure in situations of evaluation, competition (tests, competitions)
it4	Public appearances (academies, competitions) cost her/him more than other children
it5	Rarely signal his/her needs
it6	Experiences conflicts with peers particularly intensely and for a long time
it7	Feels guilty even when there is no reason to do so
it8	The teacher’s comment to the group/class are mainly taken to himself/herself
it9	Reveals some difficult situations and begins to talk about them after a long time
it10	In relations with others, she/he seems shy
it11	Approaches newly met people from a distance

E-motion
Potential of highlysensitivity

Cognitive Scale

Teachers early childhood items

	COGNITIVE SPHERE TEACHER
it1	Is overwhelmed by a large amount of information at once
it2	Asks deep, thought-provoking questions
it3	He can "drill" the topics she/he is interested in with great determination
it4	Has a special sense of humor, often not understood by peers
it5	Jokes in an intelligent way
it6	Uses rich vocabulary beyond his age
it7	Tries to perform the task entrusted by the teacher with great care
it8	Is an "expert" in some area of
it9	Can surprise you with information / knowledge
it10	In the face of a new task, analyzes all potential scenarios, anticipating difficulties and threats
it11	A slight failure causes the withdrawal of many activities that have been undertaken without any difficulty
it12	Before starts taks, asks a lot of questions
it13	Is creative
it14	Likes stability and reproducibility/repetitively in behavior and actions
it15	Easily remembers details and previously experiences

Teachers early childhood sub-scales

Teacher Elementary School								
	P25	P50	P75	P90	P95	P99		
PHS	3	3	4	5	5	5		
EMS	2	3	4	4	5	5		
INTS	2	3	4	5	5	6		
COGS	3	4	5	5	5	6		
HSC	2	3	3	4	4	4		
	PHS_T	EMS_T	INTS_T	COGS_T	HSChpl_T	EMOC_T	ACT_T	SOCI_T
EMS_T	0,64***							
INTS_T	0,42***	0,61***						
COGS_T	0,35***	0,22***	-0,14*					
HSChpl_T	0,52***	0,49***	0,27***	0,35***				
EMOC_T	0,32***	0,42***	0,15**	0,34***	0,54***			
ACT_T	0,31***	0,36***	0,34***	0,1	0,24***	0,30***		
SOCI_T	0,32***	0,47***	0,49***	0,09	0,18**	0,36***	0,56***	
SHY_T	-0,28***	-0,35***	-0,20***	-0,24***	-0,28***	-0,44***	-0,08	-0,23***
		Alfa	G.6	Omega.J				
	PHS	0,93	0,98	0,71				
	EMS	0,94	0,98	0,75				
	INTS	0,98	0,98	0,83				
	COGS	0,95	0,98	0,85				

Physical Scale

Parents preschool items

it1	Too hot foods bother her/him
it2	Finds intense lights unpleasant
it3	Is sensitive to temperature changes
it4	Avoid being in the bright sun
it5	Dislikes certain food textures (e.g. diluted, pasty, lumpy)
it6	If experiences something intensely, complains of pain (e.g. headache, stomach ache)
it7	More often than other children, signals a need for rest
it8	Badly tolerates dirt, wetting, etc. on clothing or on the hands
it9	When many things happen at once, is tired more than other children
it10	It is difficult for him to fall asleep, especially after an active day

Emotional Scale

Parents preschool items

it1	Even small events, everyday situations, can by source of stress for her / him (e.g. school trip / pre-school exit)
it2	Needs favorite objects to feel better
it3	Is easily embarrassed
it4	Is worried about the assessment of others
it5	Has a special loathing for insects, e.g. fly, gnat, spider
it6	Has a tendency to pessimistic / unfavorable course of events
it7	Experiences art very much, e.g. is moved by movies and music
it8	Has a tendency to accumulate emotions
it9	It's hard to control strong emotions
it10	Experiences emotions intensely

Interpersonal Scale

Parents preschool items

it1	Needs additional incentives(stimulus) to get involved in the group
it2	In a group where a lot is going on, it seems to be temporarily absent
it3	Badly tolerates time pressure in situations of evaluation, competition (tests, competitions)
it4	Public appearances (academies, competitions) cost her/him more than other children
it5	Rarely signal his/her needs
it6	Experiences conflicts with peers particularly intensely and for a long time
it7	Approaches newly met people from a distance
it8	Doesn't like to be observed
it9	Blocks himself/herself when is the center of attention
it10	Before joins the group, needs more time than peers

Cognitive Scale

Parents preschool items

it1	Is strongly attached to his/her way of thinking
it2	New situations cause him/her a strong need to search for information, ask questions, dispel doubts
it3	Is not satisfied with a superficial and casual answers
it4	Is slowly getting used to new people, things and phenomena
it5	Is overwhelmed by a large amount of information at once
it6	Has a special sense of humor, often not understood by peers
it7	Jokes in an intelligent way
it8	Uses rich vocabulary beyond his age
it9	Tries to perform the task entrusted by the teacher with great care
it10	Can surprise you with information / knowledge
it11	In the face of a new task, analyzes all potential scenarios, anticipating difficulties and threats
it12	A slight failure causes the withdrawal of many activities that have been undertaken without any difficulty

Parent preschool sub-scales

Parents Preschool

	P25	P50	P75	P90	P95	P99		
HSC	4	5	5	6	6	6		
PHS	3	3	4	5	5	6		
EMS	2	3	4	5	5	5		
INTS	2	3	3	5	5	5		
COGS	3	4	4	5	5	6		
TEM	3	3	3	3	3	3		
HSChpl	2	3	3	4	4	4		
	PHS_P	EMS_P	INTS_P	COGS_P	HSC_P	EMOC_T	ACT_T	SOCI_T
EMS_P	0,66***							
INTS_P	0,44***	0,66***						
COGS_P	0,50***	0,56***	0,47***					
HSC_P	0,70***	0,64***	0,44***	0,47***				
EMOC_T	0,41***	0,45***	0,21**	0,30***	0,36***			
ACT_T	-0,02	-0,06	-0,1	-0,03	-0,05	0,03		
SOCI_T	0,33***	0,43***	0,44***	0,37***	0,27***	0,56***	0,03	
SHY_T	-0,28***	-0,37***	-0,25***	-0,34***	-0,26***	-0,55***	0,07	-0,52***
			Alfa	G.6	Omega.J			
		PHS	0,95	0,98	0,78			
		EMS	0,96	0,98	0,83			
		INTS	0,97	0,99	0,83			
		COGS	0,95	0,98	0,78			
		HSC	0,91	0,96	0,72			

Physical Scale

Parents early childhood items

it1	Loves nice sounds
it2	Too hot foods bother her/him
it3	Finds intense lights unpleasant
it4	Is sensitive to temperature changes

Emotional Scale

Parents early childhood items

it1	Is strongly influenced by the moods and emotions of other people
it2	Expresses strong emotions, especially towards loved ones (emotion puffs up, rebound)
it3	Is worried about the assessment of others
it4	Has a special loathing for insects, e.g. fly, gnat, spider
it5	Has a tendency to pessimistic / unfavorable course of events
it6	Experiences art very much, e.g. is moved by movies and music
it7	Has a tendency to accumulate emotions
it8	It's hard to control strong emotions
it9	Experiences emotions intensely
it10	Doesn't need much to cry, hysteria
it11	Fatigue is manifested by aggression
it12	When many things happen at once, it stresses him/her more than other children

Interpersonal Scale

Parents early childhood items

it1	Attaches great importance to how other children assess him/her
it2	Need more time to establish relationships with peers
it3	Needs additional incentives(stimulus) to get involved in the group
it4	In a group where a lot is going on, it seems to be temporarily absent
it5	Public appearances (academies, competitions) cost her/him more than other children
it6	Rarely signal his/her needs
it7	Experiences conflicts with peers particularly intensely and for a long time
it8	The teacher's comments to the group / class are mainly taken to himself/herself
it9	In relations with others, she/he seems shy
it10	Approaches newly met people from a distance
it11	Doesn't like to be observed
it12	Blocks himself/herself when is the center of attention
it13	Before joins the group, needs more time than peers
it14	Reacts disproportionately/exaggerated to criticisms

Cognitive Scale

Parents early childhood items

it1	Is strongly attached to his/her way of thinking
it2	New situations cause him/her a strong need to search for information, ask questions, dispel doubts
it3	Is not satisfied with a superficial and casual answers
it4	Is slowly getting used to new people, things and phenomena
it5	Is overwhelmed by a large amount of information at once
it6	Asks deep, thought-provoking questions
it7	He can "drill" the topics she/he is interested in with great determination
it8	Has a special sense of humor, often not understood by peers
it9	Jokes in an intelligent way
it10	Uses rich vocabulary beyond his age
it11	Tries to perform the task entrusted by the teacher with great care

Parent early chidhoold sub-scales

Parent Primary School								
	P25	P50	P75	P90	P95	P99		
PHS	3	3	4	5	5	6		
EMS	3	4	5	5	5	6		
INTS	2	3	4	5	6	6		
COGS	3	4	5	5	5	6		
	PHS_T	EMS_T	INTS_T	COGS_T	HSC_T	EMOC_T	ACT_T	SOCI_T
PHS_T								
EMS_T	0,70***							
INTS_T	0,58***	0,64***						
COGS_T	0,41***	0,50***	0,29***					
HSC_T	0,71***	0,54***	0,49***	0,35***				
EMOC_T	0,40***	0,54***	0,31***	0,32***	0,32***			
ACT_T	0,19*	0,29***	0,26***	0,16*	0,25**	0,35***		
SOCI_T	0,32***	0,49***	0,46***	0,18*	0,29***	0,59***	0,59***	
SHY_T	-0,31***	-0,45***	-0,24**	-0,31***	-0,31***	-0,55***	-0,27***	-0,42***
			Alfa	G.6	Omega. J			
		PHS	0,95	0,79	0,98			
		EMS	0,95	0,78	0,98			
		INTS	0,97	0,75	0,99			
		COGS	0,94	0,76	0,98			
		HSChpl	0,93	0,77	0,91			

- In this project we have developed and instrument measuring SPS in children aged 3 to 9 years attending to teachers and parents responses.

- We propose a model that establishes four dimensions in the SPS trait. Physical dimension, emotional dimension, interpersonal dimension and cognitive dimension.

- Collected samples allowed us to test psychometric properties from Polish sample and trends of a cross-cultural approach to the SPS trait.

- We observed trends confirm the theoretical model. The reliability indices and the indices of the irt models in the Polish sample show adequate values to assume the reliability of the scale in the measurement of the trait.

- Some items seems very controversial and need to be cleaned showed moderate and high values of uniqueness.

- Irt models running over Polish sample showed that scale response must be shortened to five point scale which is enougth to measure the trait

- It was used EAS, CBQ, and HSC country versions for cross validation of our scales. Correlation data showed negative correlations with shyness and positive correlations with aspects of temperament that parallel high sensitivity. At the same time there were moderate correlation with HSC scale for those emotional, physical and cognitive aspect meaning

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- It is proposed a percentile criterion to identify potentially highly sensitive children and highly sensitive children, with the 90th and 95th percentiles indicating characteristic scores for these children.

- We understand that both ends of the distribution will be a reason to attend to these children since their level of sensitivity can generate pathological developments if they are not attended to. A score at the 90th or 95th percentile on two or more of the subscales should alert us to a highly sensitive or potentially sensitive child.

Thanks!!!

Thanks!!

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