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## Hypotheses

SE of German youths was examined regarding the following assumptions

Girls show lower SE than boys

In a meta-analysis on gender differences, Kling et al. [7] found a small gender effect favoring boys. In subsequent studies, Erkut et al. [9] reported no gender differences in prepubertal Mexican youths as well as Erkut et al. [9] among Puerto Rican children. In more recent studies, the findings of the earlier meta-analysis were supported [10-13]. Our study examined whether this more recent trend can be confirmed in a large population sample from a central European country, especially regarding girls still living with the disadvantage of a weaker self-concept.

**Keywords:** Self-esteem; Life satisfaction; Psychological symptoms; Risk analysis; Gender

## Introduction

Positive self-esteem (SE) is assumed to be a powerful protective characteristic, endowing children and adolescents with resources for coping with the demands and stressors of daily life. High SE correlated with psychological well-being [1-3] and even with physical health [3, 4-6]. The aim of this epidemiological study was to examine from a randomly selected large German population sample regarding its relationship with sex and age, and its associations with life satisfaction, psychological symptoms of internalizing, externalizing and indices of somatic health, including amount of sportive or leisure activities. We examined whether hypotheses suggested by

es can be confirmed in our German sample assessed late first decade of the 21st century, i.e. in spite of the and time difference. Furthermore, a main focus was on on of SE by potential psychosocial risk variables. This could enable us to evaluate the stability of the construct and to other psychosocial factors under different and changed

trajectories of SE in girls and boys with increasing age suggesting a different cognitive processing style regarding daily life affairs.

**Significant associations between SE and satisfaction in different domains of life are expected. Correlations should differ between domains and sexes.**

SE and life-satisfaction are closely related constructs, but as previously shown [17], they should be distinguished. We expected SE to be closely correlated with general life-satisfaction and explored whether different domains of personal values and goals were differently associated with SE, possibly denoting particularly relevant domains regarding self-concept. Furthermore, we examined whether the profile of associations differs between sexes [13-18]. In particular, it was expected that satisfaction with appearance would be more closely associated with SE in girls than in boys, and that it would be more strongly associated with SE in all children than satisfaction with other domains.

**Body mass index (BMI) significantly correlates with SE. The correlation should be higher in girls.**

As an "objective" and probably very salient aspect of appearance, BMI was assessed. Obesity in children and adolescents has become a severe health problem internationally [19]. It may also have become a growing challenge regarding self-evaluation and a possible threat to SE, since it is broadly discussed in public as a major blemish. Findings from recent studies found that not the objective weight status but the perceived or subjective weight status correlated with SE [20]. A review [21] also suggested lower levels of SE in "objectively" obese youths. However, the main variables used in these studies, i.e. self-reported limitations in competencies attributed to obesity, were different from our more global measure of SE. We expected a significant moderate association between an objective index of being (over)weight with SE, and also sex differences in the size of the correlation.

**The level of physical activities is expected to positively correlate with SE.**



coefficients no longer differed (Table 2). Another significant difference between sexes was found in general life satisfaction in association with SE.

General life satisfaction	0.54	0.56	0.5	0.55	0.66	.53 #
Phys. activities (C)	0.15	0.11	0.14	0.13	0.11	0.12
BMI (P)	-0.15	-0.21	-.10 #	-0.15	-0.18	-0.16
INT (C)	-0.55	-0.55	-.51 #	-.61##	-0.61	-0.58
INT (P)	-0.33	-0.35	-0.31	-0.36	-0.37	-.33
EXT (C)	-0.4	-0.39	-0.4	-0.43	-0.48	-0.47
EXT (P)	-0.18	-0.2	-0.21	-0.18	-0.21	-0.22
Som. symp. (C)	-0.41	-0.41	-0.37	-0.41	-0.46	-.37 #
Som. symp. (P)	-0.29	-0.27	-0.19	-0.27	-0.27	-.18 #
Health (P)	-0.18	-0.19	-0.16	-0.19	-0.25	-.17#
Prediction from W2 (n)	2329-2824	1193-1444	1388-1424	2343-2847	1201-1459	1142-1224
DysParent (C)	-0.27	-0.32	-.23 #	-0.32	-0.3	-.21#
Family climate (C)	0.37	0.38	.29 #	0.45	0.38	.26#
Single parent (P)	-.02 ns	-.07 ns	-.06 ns	-.07 ns	-.01 ns	-.07
SES (P)	-.11 ns	-.05 ns	-.07 ns	-.05 ns	-.02 ns	-.01 ns
* all corr. except those notified as "ns", significant at p < 0.001;						
# Significant differences between girls and boys in the correlation coeff. (Z-Tests, p<0.05)						
## Significant effect of time of assessment						
(C) : Children's ratings (self-report) (0-10); DysParent: dysfunctional parenting style; EXT: Externalising; INT: Internalising; (P): Parents' ratings; Health : Rating of children's general health (0-10); Som. symp.: No of recurrent physical symptoms; Physical activities: No of physical (sportive) activities; SES: socioeconomic status; Single parent: single parent household; W2 /3 / 4: assessment waves.						

**Table 2** Correlations (rho) and regression coefficients: self-esteem and its association with different psychosocial variables

ANOVAs on life-satisfaction scores including general life and all domain specific scores revealed highly significant time effects showing a decrease of satisfaction in W4, except for the appearance domain which did not reach significance (Table 3). Also, significant sex differences were seen in nearly all analyses, except for the domain of

school and friendship. In all others domains, girls reported higher dissatisfaction. In general life-satisfaction, a significant interaction effect was found (Table 3) with girls being less satisfied than boys and becoming even more dissatisfied over time than boys (Mf/W3= 4.33 (.93), Mm/W3= 4.42 (.82)/Mf/W4= 4.16 (.99), Mm/W4= 4.35 (.84).

variables / effects	Wave		Sex		Interaction	
	F(df)	p	F(df)	p	F(df)	p
satisfaction						
school	10.19 (1/2945)	0.001		0.92 ns	< 1	0.59 ns
sports	46.56 (1/2947)	0	44.91 (1/2947)	0	3.95	0.047 ns
friendship	11.26 (1/2945)	0.001	< 1	0.47 ns	< 1	0.56 ns
appearance	5.56 (1/2928)	0.018 ns	37.66 (1/2928)	0	1.71	0.19 ns



significantly

## SE and psychological and psychosomatic characteristics

A main interest of the study was the analysis of associations describing the links between SE and different psychological trait variables. Close links were found with INT, hardly differing between assessment points and sexes. Thus, for both sexes a higher level of negative affectivity was associated with low SE. We already discussed the character of this psychological variable as an early appearing disposition with some genetic background, probably linked to female sex. Indeed, as in other studies, a higher level of INT was seen in girls than in boys with an effect size of  $d = .37$ . EXT was significantly associated with SE signifying that a tendency to respond with anger, hyperactivity and aggressiveness was associated with lower SE. However, associations were distinctly lower than with INT which seemed to be a much more endangering cognitive-emotional processing strategy regarding SE. The correlations of SE with INT and EXT were stronger when the children themselves reported their psychological functioning compared to parents' report. The fact that significant correlations were maintained when using parents' report,



It is important in the prospective analysis where a block of associated risk factors should be analyzed in a meaningful multivariate fashion, to determine the common explained variance by these neighboring constructs and enables singling out the most potent of these predictors.

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## Summary and Conclusions

A population based sample of children and adolescents (11 - 17 years) was characterized by a distinctly positive SE with about 60% reaching scores  $\geq 4$  (max. 5). The observed sex difference with lower self-esteem in girls supports findings from a more than a decade old meta-analysis. These findings are best explained by a stable tendency for girls to be more censorious and derogatory towards themselves and feature more negative affectivity, associated with an INT style of processing. This negative cognitive-emotional tendency is not only directed towards the self but also becomes apparent in the evaluation of nearly all domains of life. It was speculated that this is a consequence of an internal disposition and not strongly determined by particular negative psychosocial life conditions. In other words it may evidence a high sensitivity to social stressors of daily life in girls with the consequence of a more distinct negative affect.

In agreement with the finding that appearance was more relevant for SE for girls, BMI was more closely linked to SE in girls than boys. However the association of body weight was less distinct than expected. The positive impact of engaging in physical activities - which were rather limited - for the global SE in the current population sample was minute.

Children with lower SE were characterized by a higher level of EXT, but less so compared to INT. The associations between low SE and dysfunctional processing were more pronounced when self-report of children was used, but findings were not attributable to bias only as parental data confirmed it. Altogether psychological as well as somatic well-being was confirmed as a correlate of less positive SE.

Features of family interaction predicted more than 22% of the variance in SE, i.e. the quality of family interaction was quite important for SE in children whereas structural social factors like SES and a single parent household had little influence. Data suggested that girls were much more sensitive to adverse and also positive influences of family regarding their self-concept.

These findings were based on a population study with a relative low level of dysfunctional psychosocial features with a small variance in variables tending to suppress the size of correlations.

The results highlighted the need for more research regarding the factors

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