



# Chronic Stress and its Consequences on Subsequent Academic Achievement among Adolescents

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## Objectives

I. How is subsequent academic achievement affected by previously perceived chronic stress symptoms?

II. Which factors constitute a heightened risk for chronic stress?

## Background

- Within the last 20 years, stress and its associated mental health problems have been increasing dramatically among Swedish adolescents (Hagquist, 2010) and it has become a serious public concern (KVH, 2010; SBU, 2010).
- Although the high prevalence of stress-related health problems among adolescents is evident in numerous studies (Bremberg, 2006; KVH, 2010; SBU, 2010; Socialstyrelsen, 2009), to our knowledge, little attention has been paid thus far to the effects that the experiencing of long-term stress symptoms may have on academic achievement.
- The aim of the present study was to examine if high school students who have been persistently perceiving stress over a longer period of time (i.e., two years in the present study), differ significantly with regard to academic achievement from students who experience stress only from time to time periodically or from students who do not perceive any stress symptoms during their time in high school. In addition, the relative importance of risk factors, previously associated with stress, were tested among individuals experiencing chronic stress.

## Methods

- 273 high school students answered the Shirom Melamed Burnout Measure (SMBM), which is designed to measure chronic stress according to perceived stress symptoms on two occasions, at the beginning and at the end of high school.
- The students' final grades, which are based on their total academic performance through

out high school served as indicators for academic achievement.

- Rosenberg's self-esteem scale (RSE-scale)
- Performance-Based Self-esteem scale (PBS-scale)
- Job Demand Control Support Scale (JDCS)
- Karolinska sleep questionnaire (KSQ)
- Single items: sleep duration, total life satisfaction, self-rated health.

## Results

According to their responses on the SMBM items at time 1 and time 2, and using the cut-off point of 4 or more, the students were categorized into three different stress groups:

- No-stress group: 173 students (63%; 106♂) did not feel stressed
- Transitory stress group: 59 students (22%; 20♂) reported experiencing a high degree of stress symptoms temporarily
- Chronic stress group: 41 students (15%; 10♂) reported high levels of stress related symptoms at both time points

Comparing the final grades of the different stress groups showed significant differences ( $F_{2,266}=5.605$ ,  $p=0.004$ ,  $\text{partial } \eta^2=0.040$ ) (Table 1). It was revealed that the chronic stress group achieved significantly worse grades than the other two groups, which did not differ significantly from each other.

The results in table 2 indicate that perceived high demands, low global self-esteem, perceived short sleep duration, and poor self-rated health were relevant indicators for an increased risk of chronic stress during high school.

## Discussion

- Fortunately, the no-stress group was the largest (63%), which suggests that the majority of high school students do not experience severe stress symptoms. However, taken together, 100 adolescents (37%) experienced high levels of stress-related symptoms at least once during their time in high school.
- Chronic stress has more immediate consequences on adolescents in addition to the negative long-term implications it can have on health and well-being. Because of its implications on academic achievement, it can have significant negative repercussions on a young person's future chances of being accepted into a quality line of education.
- Adolescents who reported low global self-esteem, high demands, sleep deprivation, or poor health showed a higher risk for developing chronic stress and poor academic achievement.
- Considering the results of the present study, the development of specific interventions for highly stressed adolescents is desirable.

## Conclusion

The results of the present study make a contribution to research on adolescent health and education. The study combines longitudinal self-reported data and objective school information. Thereby, it offers a more concrete understanding of the negative consequences of chronic stress on academic achievement and thus provides a richer context for the development of effective stress intervention strategies in an educational setting.

## Acknowledgements

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Table 1. Descriptive statistics for final grades in each stress group

		No-stress	Transitory stress	Chronic stress
		M (S.D.)	M (S.D.)	M (S.D.)
Final grades	♀	17.40 (1.639)	17.58 (1.732)	15.55 (3.416)
	♂	16.80 (2.360)	16.11 (2.275)	15.59 (3.195)

Table 2. Prediction of group membership (chronic or no-stress group) by means of a logistic regression analysis.

	B	S.E.	Sig.	Exp (B)	95% C.I. for EXP(B)	
					Lower	Upper
Global self-esteem	-.927	.327	.005	.396	.208	.751
Pb self-esteem	-.176	.346	.610	.838	.426	1.651
Demands	1.181	.391	.003	3.257	1.513	7.011
Social support	-.044	.296	.882	.957	.535	1.711
Sleep difficulties	-.073	.328	.825	.930	.489	1.768
Sleep duration	-1.237	.322	.000	.290	.154	.546
Life satisfaction	.092	.320	.775	1.096	.585	2.054
Self-rated health	-.955	.337	.005	.385	.199	.746
Constant	-3.194	.509	.000	.041		

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