

# Early Social Vulnerability in the family increases the risks for almost all common childhood diseases when growing-up

– the prospective ABIS study



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For almost 100 years we have measured  
Inequalities in health  
with quite robust and reliable indicators like

**Social class**

**Socioeconomic status etc**

Lower socioeconomic groups are  
more at risk  
more affected and  
**more vulnerable** to diseases and ill-health

***Educational level** is probably the single most most crucial factor for inequalities.*

*In this study we to have tried another approach to health inequalities in childhood...*

*The concept.....*

## ***Social vulnerability***

*The idea to analyze several inter-related social, socioeconomic and psychosocial factors impacts on health in one composite index.*



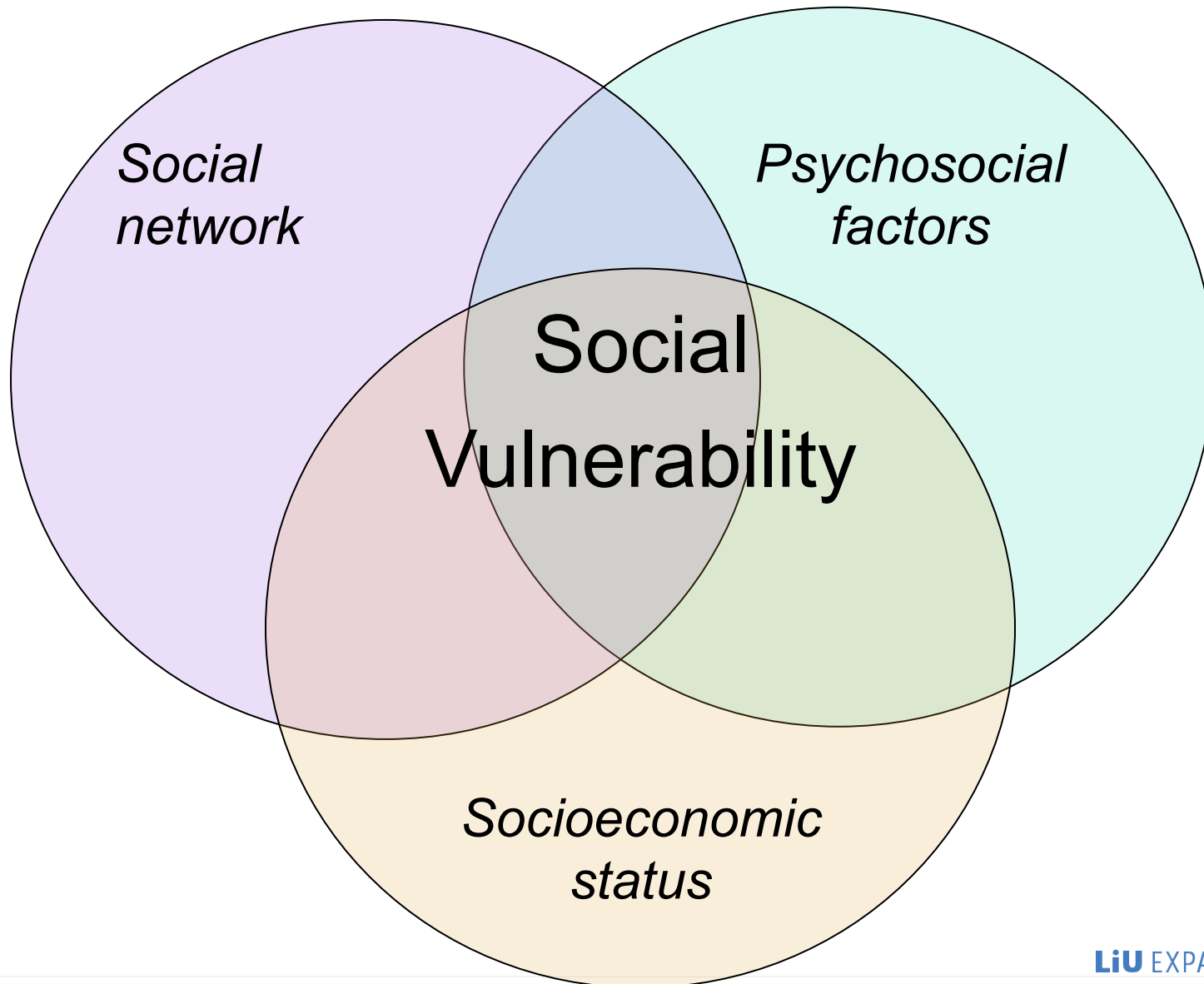
# What is social vulnerability?

Vulnare (latin) “to be wounded”

Indicator of the potential risk to be harmed  
physically and/or psychologically  
when exposed  
to stressors and hazards  
within a social context



*Social vulnerability index – a composite of three type of factors...*



# The 11 variables in the social vulnerability index

## Indicators of the close family at child birth

*Living in an Apartment (as opposed to own house)*

*Father's highest level of education – elementary school*

*Mother's highest level of education – elementary school*

*Father unemployed or on sick leave the year before or under pregnancy*

*Mother unemployed or on sick leave during pregnancy*

*Both parents born abroad*

*Mother living alone*

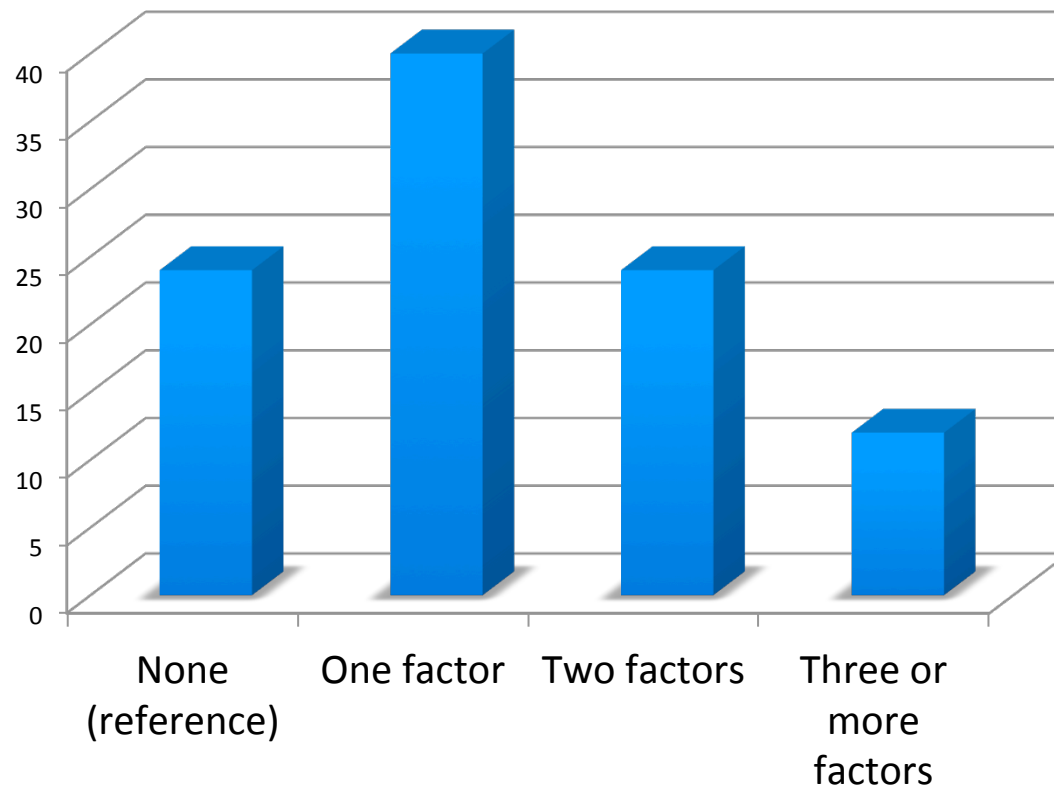
*Serious life event during pregnancy*

*Mother not feeling supported*

*Mother not feeling safe*

*Mother worried over the possibility of child falling ill with serious disease*

# Distribution of the social vulnerability factors in the cohort



# ABIS - a prospective study of children

## All Babies in Southeast of Sweden



Southeast Sweden  
 1.3 milj inhabitants  
 Sweden  
 9.5 milj inhabitants

*All children born  
 1997/99 in the region*

*21 700 children invited  
 17 000 children  
 participated (78.6%)*



The screenshot shows the ABIS website interface. At the top left is the ABIS logo with the text 'ALLA BARN I SYDÖSTRA SVERIGE'. Below the logo is a navigation bar with 'Hem', 'ABIS-studien', and 'Forskning'. The main content area is divided into several sections: 'Nyheter', 'Artikelarkiv', a search bar labeled 'Sök på ABIS', a 'Läs och lär!' section with links for 'Pressklipp', 'Ordlista', and 'Länkar', and 'Om ABIS-projektet' which includes a video thumbnail and a link 'Se filmen om ABIS >>'. On the right side, there is a 'Välkommen' section with text about the study and a 'Aktuella nyheter' section dated '2011-09'.

[www.abis-studien.se](http://www.abis-studien.se)

# The ABIS study

For a regional subsample in the ABIS-study we have besides data from questionnaires and biological samples

also merged:

**All Health care visits**

**All ICD-diagnosis set by doctors**

at both **primary care** and **hospital care**

From birth up to the age of 8-10 years

# The 20 most common childhood diagnosis among children followed from birth to 8-10 years of age

Cumulative incidence  
(N = 1876 Swedish children)



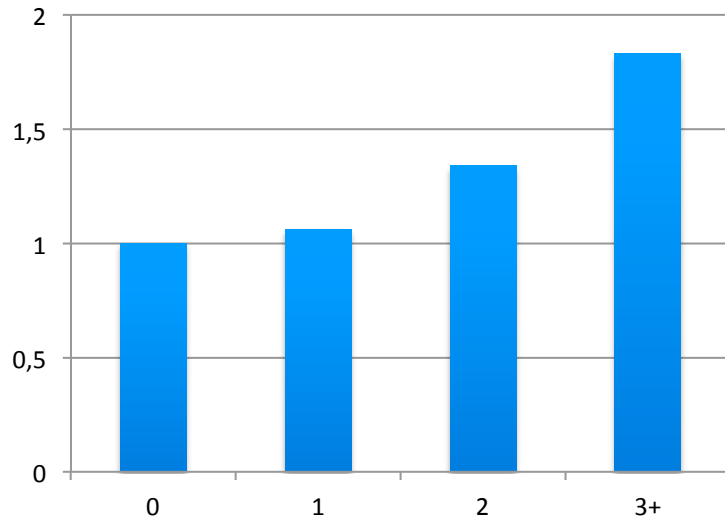
1.	Acute upper respiratory infections (J00-J06)	81 %
2.	Otitis media (H65-67)	67 %
3.	Injury and poisoning (S00-T98)	57 %
4.	Viral infections of unspecified site (B34)	29 %
5.	Infections of the skin (impetigo) (L00-L08)	28 %
6.	General symptoms and signs (R50-R69)	22 %
7.	Other acute lower respiratory infections (J20-J22)	20 %
8.	Conjunctivitis (H10)	19 %
9.	Dermatitis and Eczema (L20-L30)	18 %
10.	Abdominal and pelvic pain (R10)	16 %
11.	Intestinal infectious diseases (A00-A09)	15 %
12.	Cough (R05)	12 %
13.	Mental and behavioural disorders (F)	11 %
14.	Urinary tract infections (N30,N34,N39)	10 %
15.	Viral infections characterized by skin lesions (B00-B09)	10 %
16.	Pneumonia (J12-J18)	10 %
17.	Asthma (J45)	10 %
18.	Urticaria(L50)	9 %
19.	Scarlet fever (A38)	6 %
20.	Rash and other skin eruptions (R21)	5 %

1. **Acute upper respiratory infections (J00-J06)**
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Some examples

# Social vulnerability and disease risks

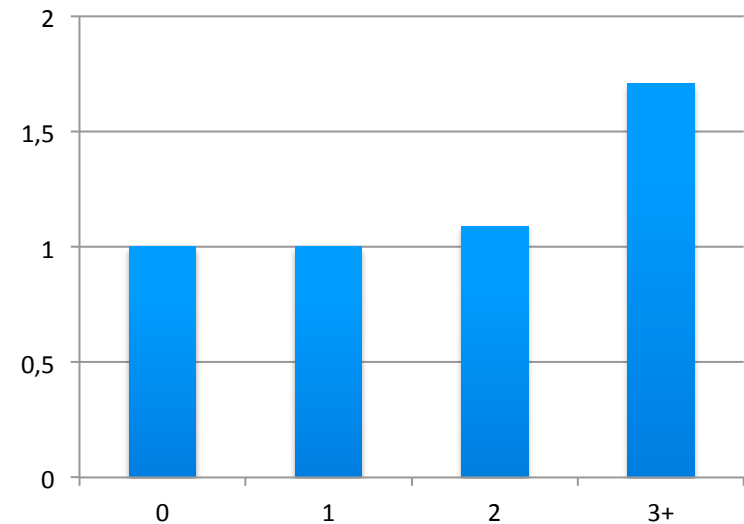
*Acute upper respiratory infections (ICD J00-J06)*



**Social vulnerability factors**

**OR = 1.83 p=0.0008**

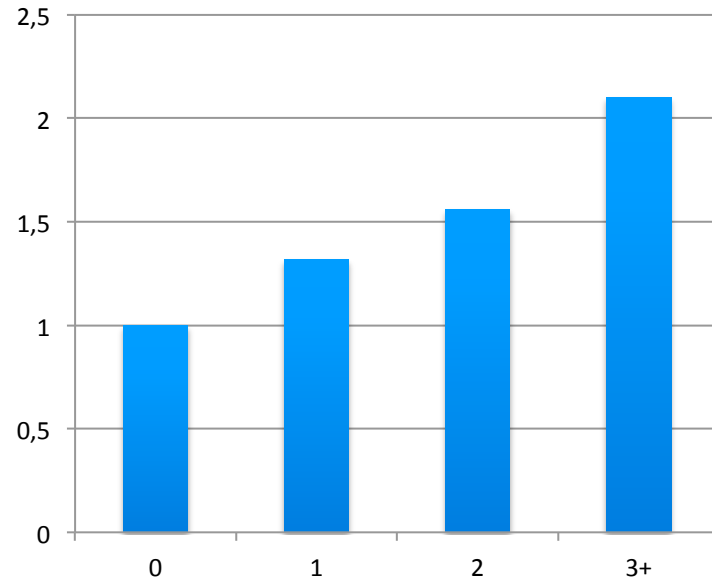
*Otitis media (ICD H65-H67)*



**Social vulnerability factors**

**OR = 1.71 p=0.004**

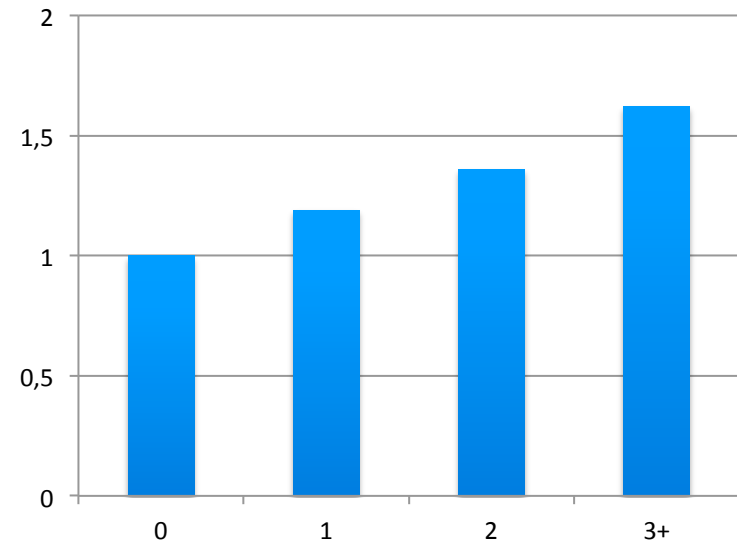
*Viral infections  
of unspecified site (ICD B34)*



**Social vulnerability factors**

**OR=2.10 p <0.0001**

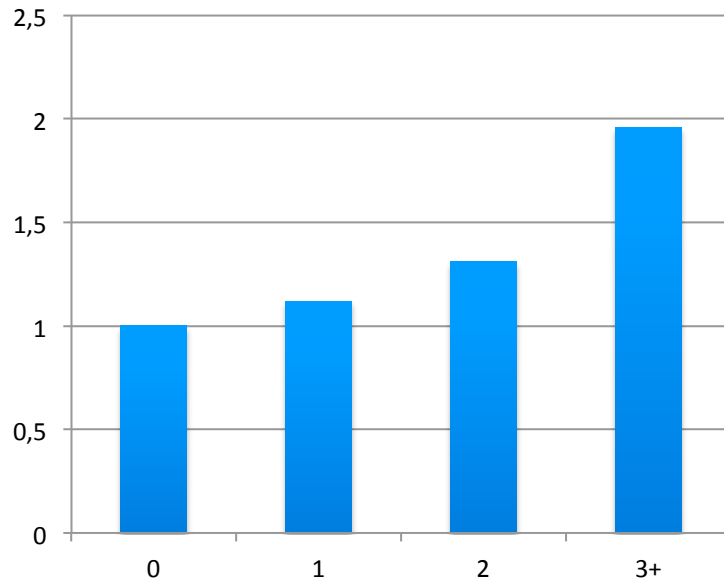
*Conjunctivitis (ICD H10)*



**Social vulnerability factors**

**OR=1.62 p = 0.01**

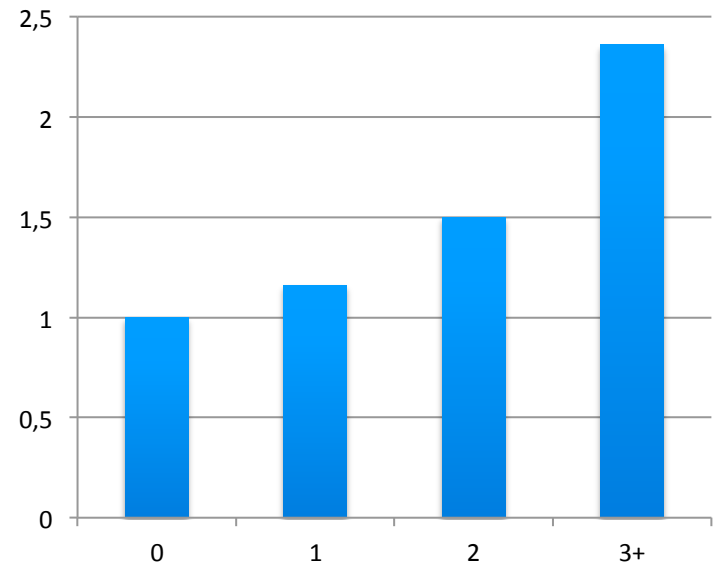
*Dermatitis and eczema (ICD L20-L30)*



**Social vulnerability factors**

**OR=1.96 p = 0.001**

*Intestinal infections diseases (ICD A00-A09)*



**Social vulnerability factors**

**OR=2.36 p <0.0001**

Social vulnerability was also associated  
to other childhood diagnosis:

- Obesity
- Lactose intolerance
  - Chicken pox
  - Hearing loss
- Neoplasms/cancer



# Possible explanations

Differences in:

- \* Health behaviours
- \* Risk exposures (smoking in the family)
- \* Housing conditions,
- \* Living in poorer social/physical environments

Another and possible link  
why social vulnerable children  
are more affected  
is through a biological mechanism  
(Biopsychosocial mechanism)  
the HPA-axis  
**STRESS**

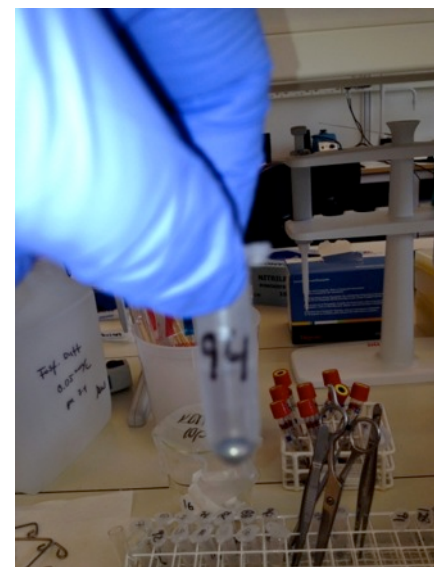
# Retrospective long-term stress exposure measured by cortisol in hair

A new biomarker has been developed by our research group to retrospectively measure the stress hormone cortisol (HPA-axis activity).

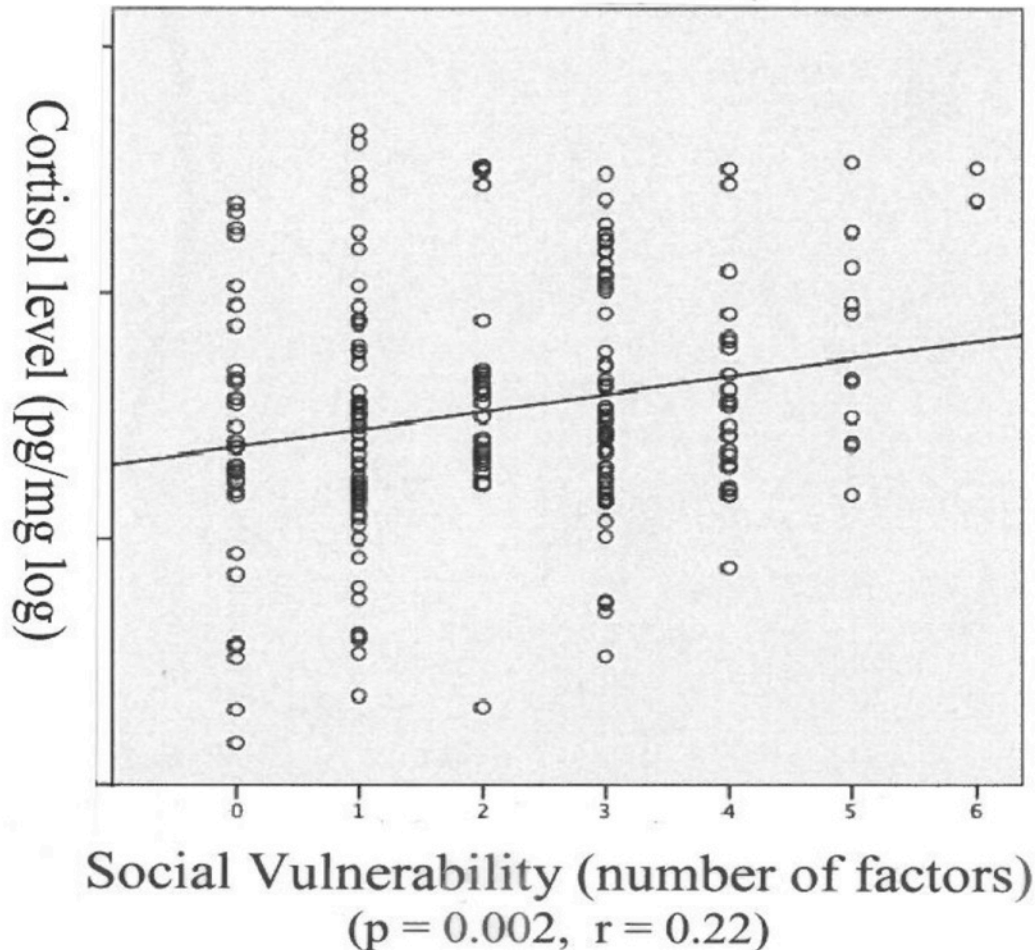
Cortisol in hair serves as a retrospective calendar (ex 3 months back) of individual long-term stress exposure.



We have hair samples from:  
**mothers** during pregnancy  
**Children** from birth and  
at all follow-ups:  
(1,3,5,8,10-11,13-16 years)



# Association found between social vulnerability and cortisol (stress) levels



*An initial analysis done for a random sample of  $n=209$  children from the regional ABIS cohort of children.*

# Conclusions

- Early social vulnerability in the family increases the risk for the majority of the most common childhood diseases when growing up.
- In most cases also a dose-response association - the more vulnerable the higher disease risk
- A challenge to elaborate the concept of socio-economic status/social class etc to better help us understand why health inequalities persist – social vulnerability might be an interesting concept...

*Many thanks for your attention!*



*[www.abis-studien.se](http://www.abis-studien.se)*



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