

Stuttgart, Leseruni, 18.7.2013

# Leben in der Großstadt: soziales Risiko für psychische Erkrankungen?

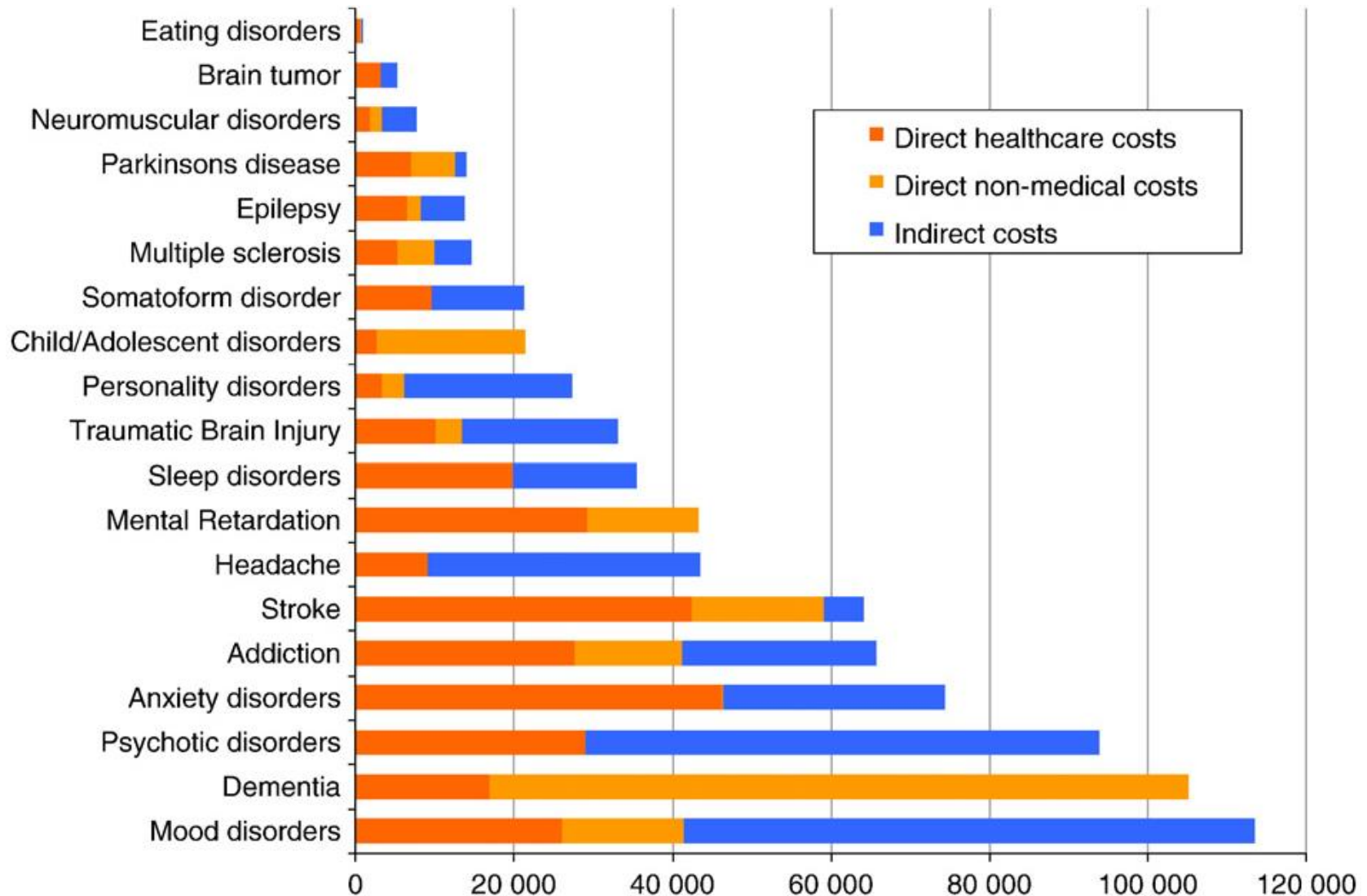
Andreas Meyer-Lindenberg  
Zentralinstitut für Seelische Gesundheit, Mannheim



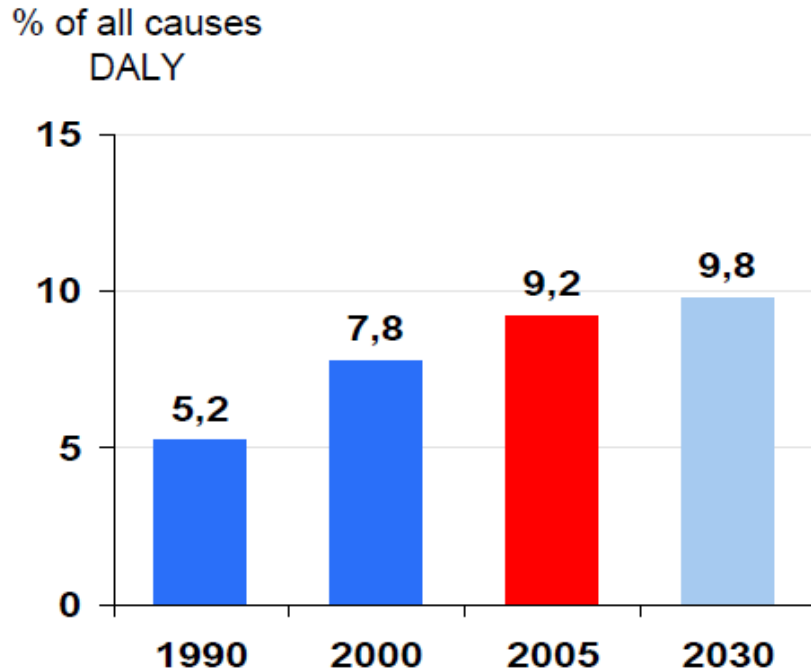
# Krankheitslast weltweit

Worldwide		
Rank	Cause	DALYs <sup>‡</sup> (millions)
1	Unipolar depressive disorders	65.5
2	Alcohol-use disorders	23.7
3	Schizophrenia	16.8
4	Bipolar affective disorder	14.4
5	Alzheimer's and other dementias	11.2
6	Drug-use disorders	8.4
7	Epilepsy	7.9

# Geschätzte Gesamtkosten von Hirnerkrankungen in Europa 2011 (€ PPP Mio)



# Nehmen Depressionen zu?



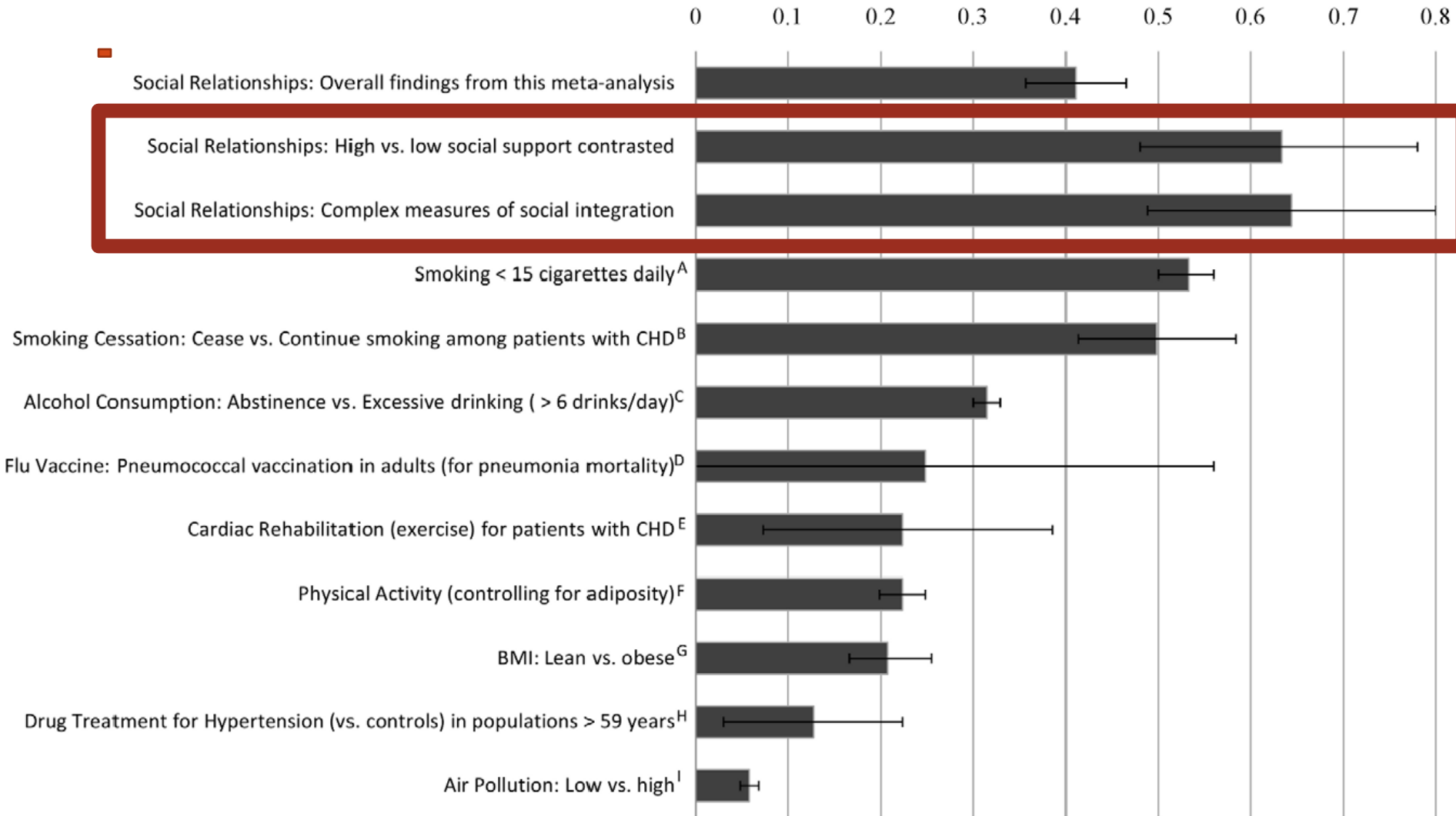
Europaweit: Wittchen 2008

## Bestätigung des Zunahmeeffekts

- Cross-national Group (2001)
- ICPE-Group (2003)
- USA: NCS (Kessler et al., 1994) vs. NCS-R (Kessler et al., 2005)
- Canada: "Stirling County" study (1979-1992; Murphy et al., 2000)
- EDSP (Wittchen et al 2001)
- Meta-Analyse zu Depression (KiJU): Costello et al. (2006)
- BGS (Jacobi & Wittchen 2006)
- World Mental Health surveys (Kessler et al 2006)
- NCS-R (Kessler 2009)



# Soziales Umfeld und Langlebigekeit



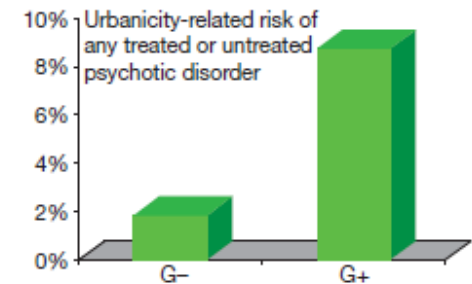
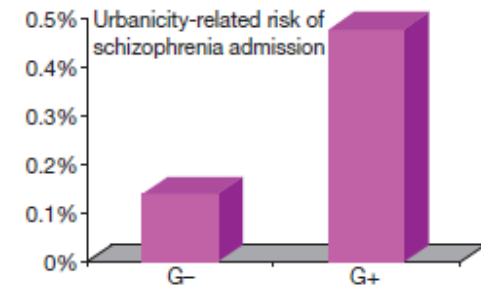
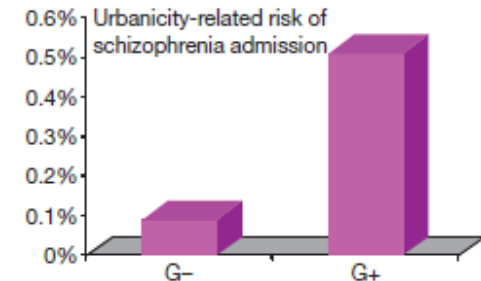
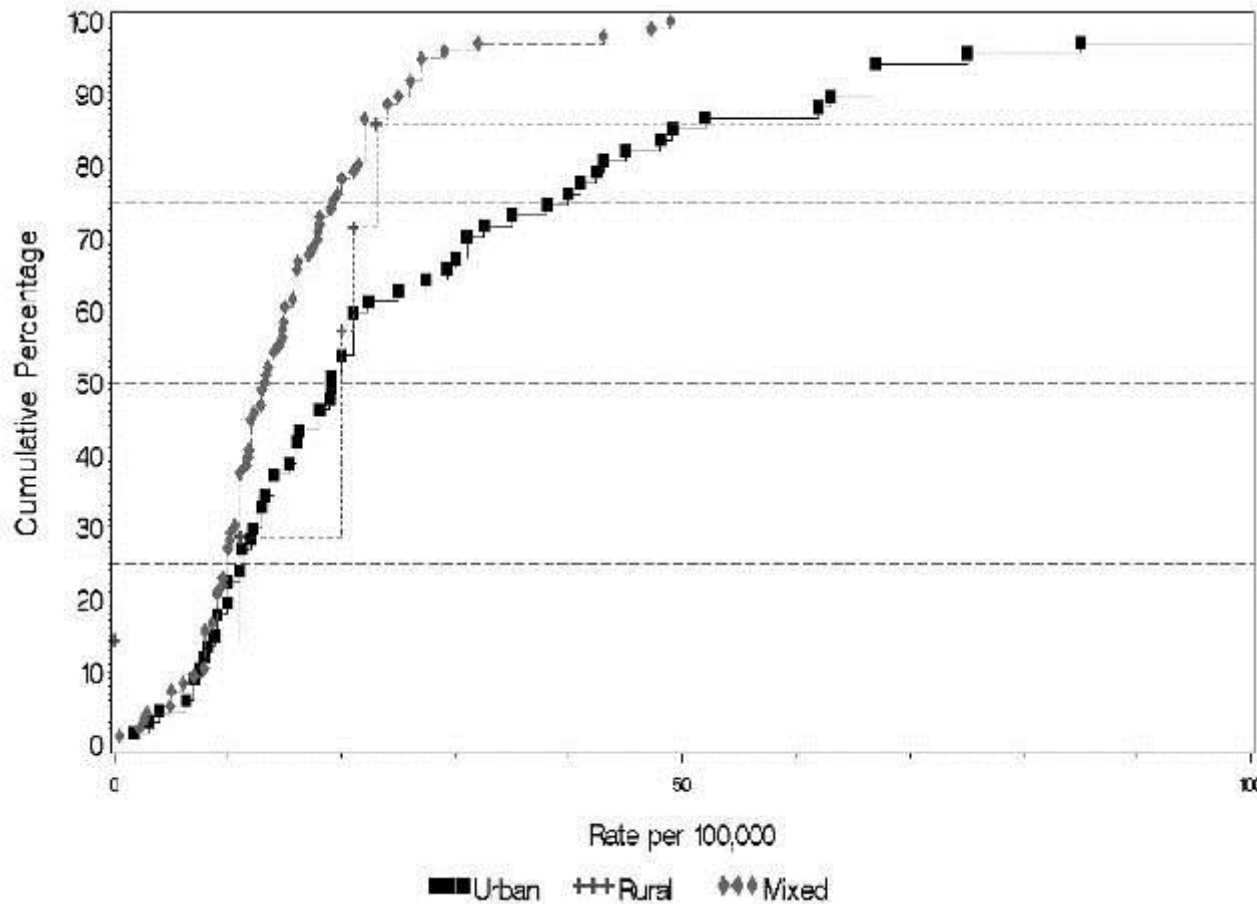


# Stadt-Land-Unterschiede

**Table 2: Prevalence of psychiatric disorders in the last 12 months in adults (18–65 years of age) in Germany in relation to urbanization in 1999 (weighted percentages with standard error)**

	Urbanization		Very Urban		Urban		Rural		Very Rural		p for trend
	Extremely urban N = 1169 %	Se	N = 849 %	Se	N = 888 %	Se	N = 661 %	Se	N = 614 %	Se	
any mood disorders	15.2% (178)	1.1%	12.4% (105)	1.2%	10.6% (94)	1.0%	9.8% (65)	1.1%	9.3% (57)	1.1%	.000
major depressive disorder	11.1% (130)	0.9%	7.7% (65)	1.0%	6.9% (61)	0.8%	7.5% (50)	1.0%	6.8% (42)	1.0%	.001
any bipolar disorder	1.2% (14)	0.3%	1.2% (10)	0.4%	0.5% (4)	0.2%	0.5% (3)	0.3%	0.3% (2)	0.2%	- *
dysthymia	4.8% (56)	0.6%	5.4% (46)	0.8%	4.6% (41)	0.7%	3.7% (24)	0.7%	3.2% (20)	0.7%	.047
any anxiety disorders	16.9% (198)	1.1%	12.6% (107)	1.2%	14.8% (131)	1.1%	14.3% (95)	1.4%	12% (74)	1.3%	.024
social phobia	2.6% (30)	0.5%	2% (17)	0.5%	1.5% (13)	0.4%	2.5% (17)	0.6%	1.1% (7)	0.4%	.086
any simple phobia	7.9% (92)	0.8%	7.2% (61)	0.9%	7.3% (65)	0.8%	7.6% (50)	1.0%	8.2% (50)	1.1%	.895
generalized anxiety disorder	2.1% (25)	0.4%	1.3% (11)	0.4%	1.5% (13)	0.4%	1.3% (9)	0.4%	0.9% (6)	0.4%	.065
obsessive compulsive disorder	0.9% (11)	0.3%	1.1% (9)	0.4%	0.8% (7)	0.3%	0.4% (3)	0.3%	0.1% (1)	0.1%	- *
panic disorder with/without agoraphobia	2.7% (32)	0.5%	2.6% (22)	0.6%	2.4% (21)	0.5%	2.4% (16)	0.6%	1.3% (8)	0.4%	.098
any somatoform disorder/ syndrome	13.7% (160)	1.0%	13.5% (115)	1.2%	9.7% (86)	1.0%	8.2% (54)	1.1%	7.4% (45)	1.0%	.000
SSI4.6	5.6% (65)	0.7%	5.9% (50)	0.8%	3.3% (29)	0.6%	2.9% (19)	0.6%	2.8% (17)	0.6%	.000
pain disorder	9.8% (115)	0.9%	9.7% (82)	1.1%	7.6% (67)	0.9%	6.5% (43)	1.0%	5.4% (33)	0.9%	.000
any substance disorder	5.1% (60)	0.7%	3.7% (31)	0.7%	3.6% (32)	0.6%	4.9% (32)	0.8%	5.1% (31)	0.8%	.920
alcohol abuse or dependence	4.3% (50)	0.6%	3.8% (32)	0.7%	3.1% (28)	0.6%	4.9% (32)	0.8%	4.7% (29)	0.8%	.556
alcohol dependence	3.4% (40)	0.5%	3.1% (26)	0.6%	2.3% (20)	0.5%	4.3% (28)	0.8%	4% (25)	0.8%	.386
illicit drug abuse/dependence	1% (12)	0.3%	0.5% (4)	0.3%	0.8% (7)	0.3%	0.2% (1)	0.2%	0.8% (5)	0.3%	- *
possible psychotic disorder	2.4% (28)	0.5%	3.5% (30)	0.7%	2.6% (23)	0.5%	2.7% (18)	0.6%	1.4% (9)	0.5%	.208
any mental disorder	36.4% (426)	1.5%	31% (263)	1.7%	29.4% (261)	1.5%	28.3% (187)	1.7%	26.6% (163)	1.7%	.000

# Stadt(geburt) und Schizophrenierisiko

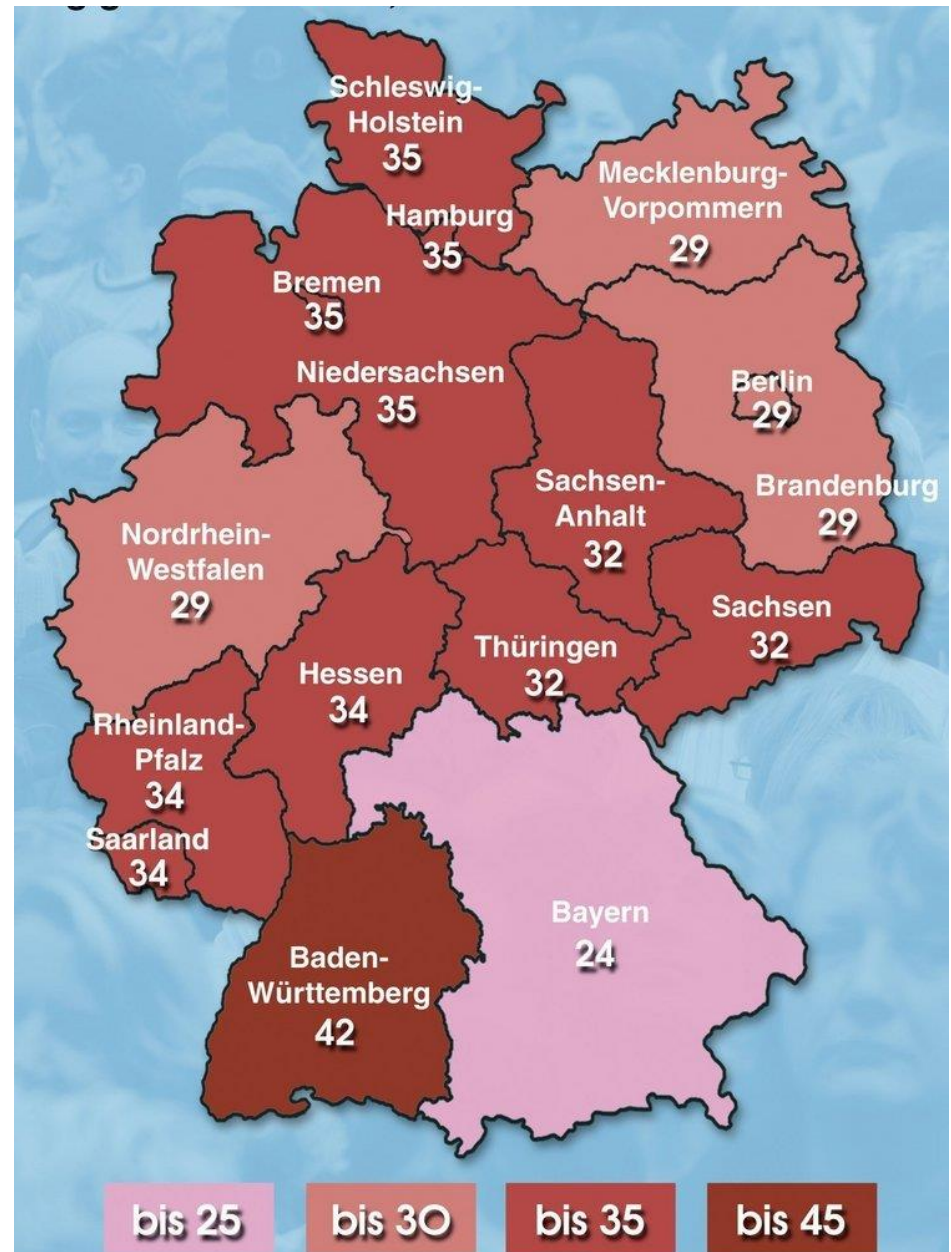


McGrath *et al.* **BMC Medicine** 2004

van Os *et al.* **Nature** 2010

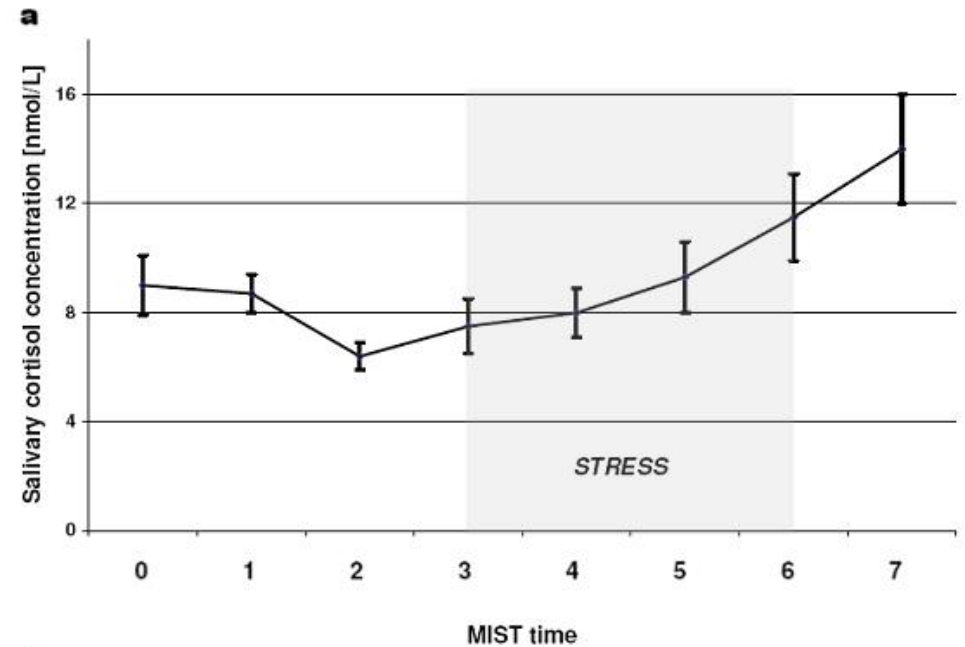
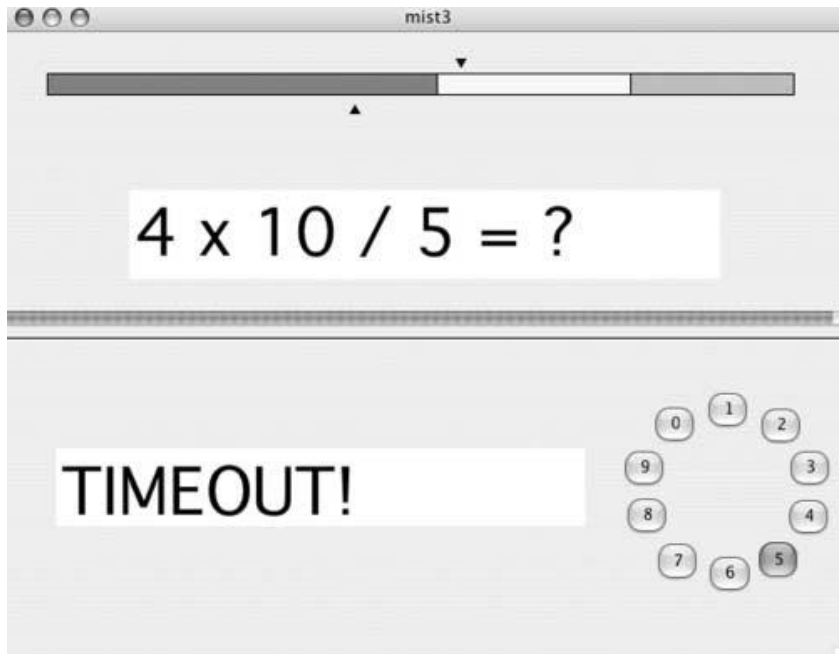


# Subjektive Stressbelastung in Deutschland

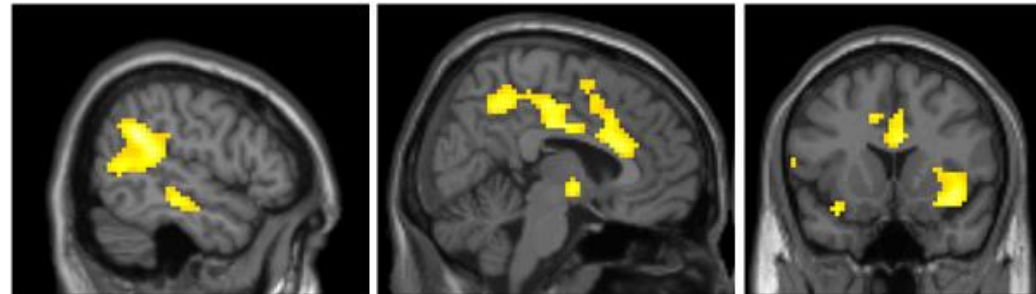


(Die Welt, 2009)

# Montreal Imaging Stress Task

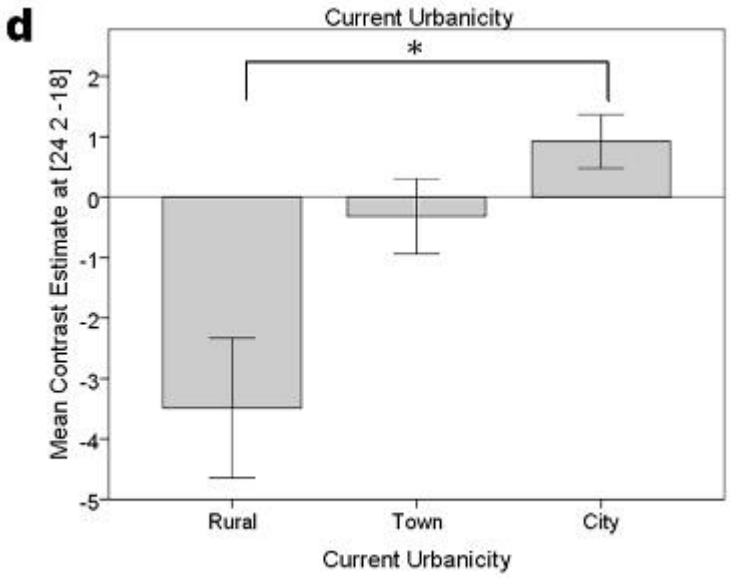
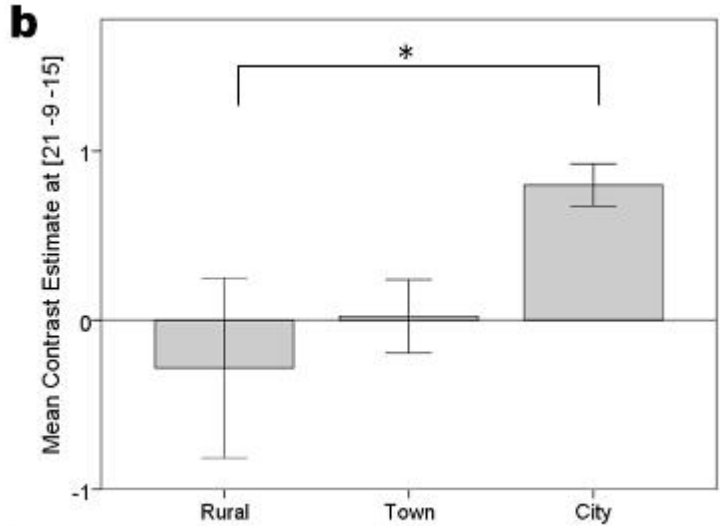
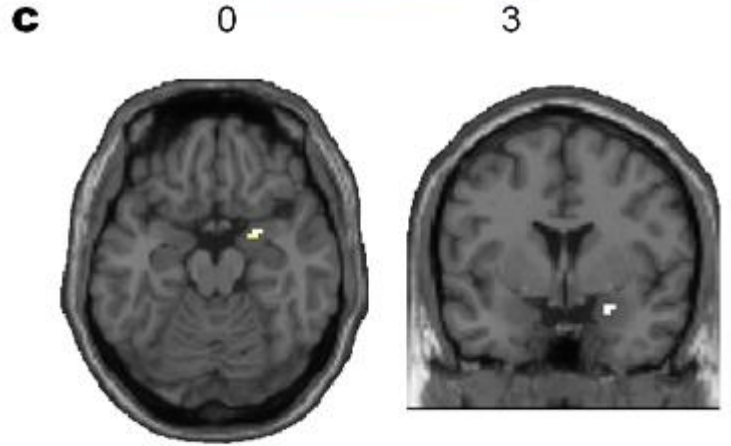
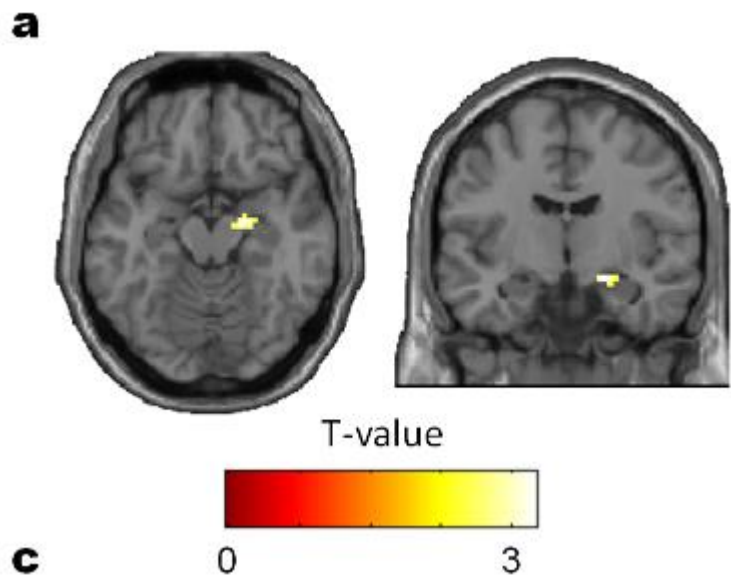


**b**

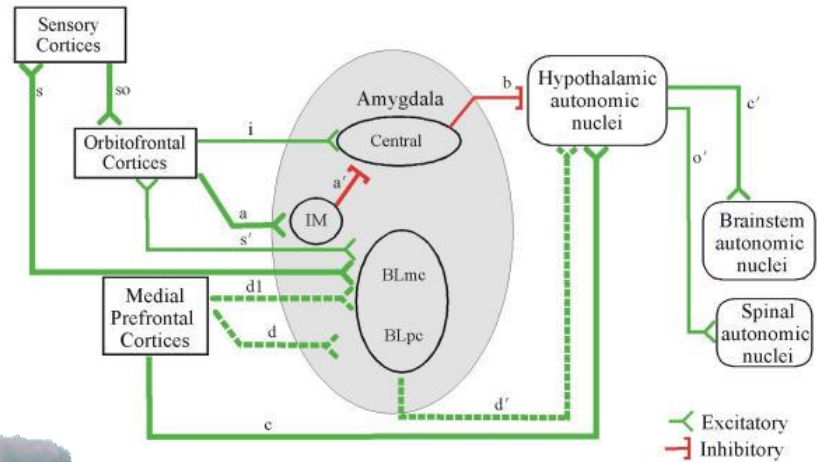
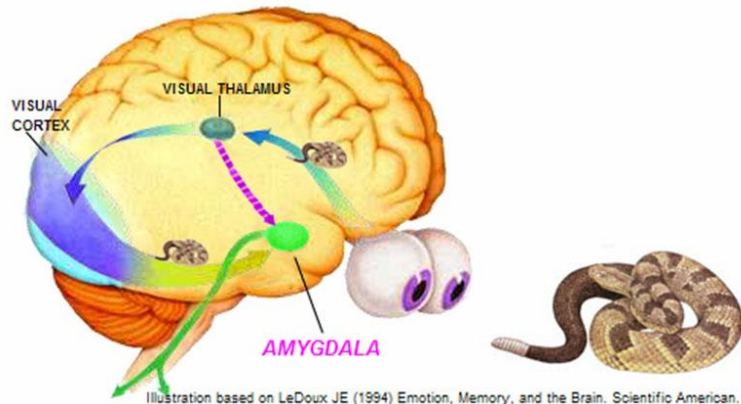


Lederbogen, Kirsch, Haddad et al.,  
**Nature** 2011

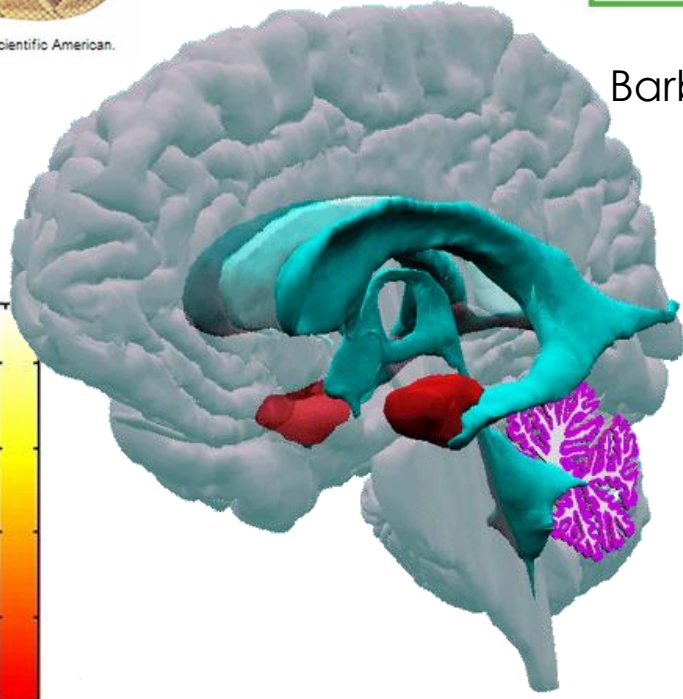
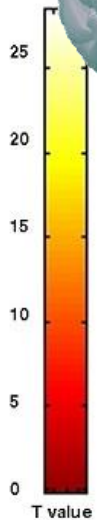
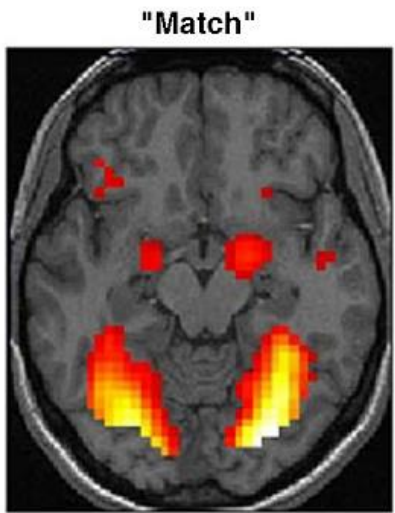
# Urbanizität und Amygdalaaktivierung



# Amygdala



Barbas et al. **BMC Neurosci** 2003

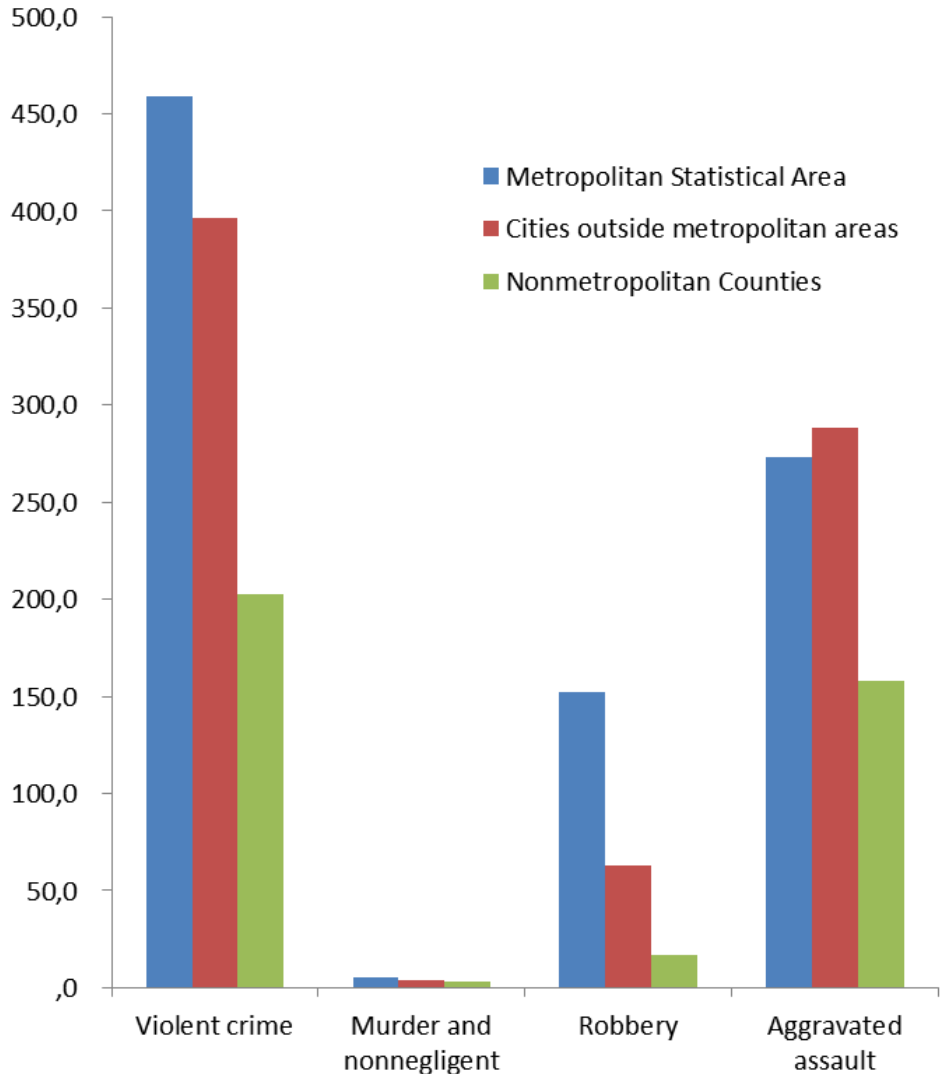


A



Hariri et al.  
**Biol Psych** 2000

# Stadt und Gewalt



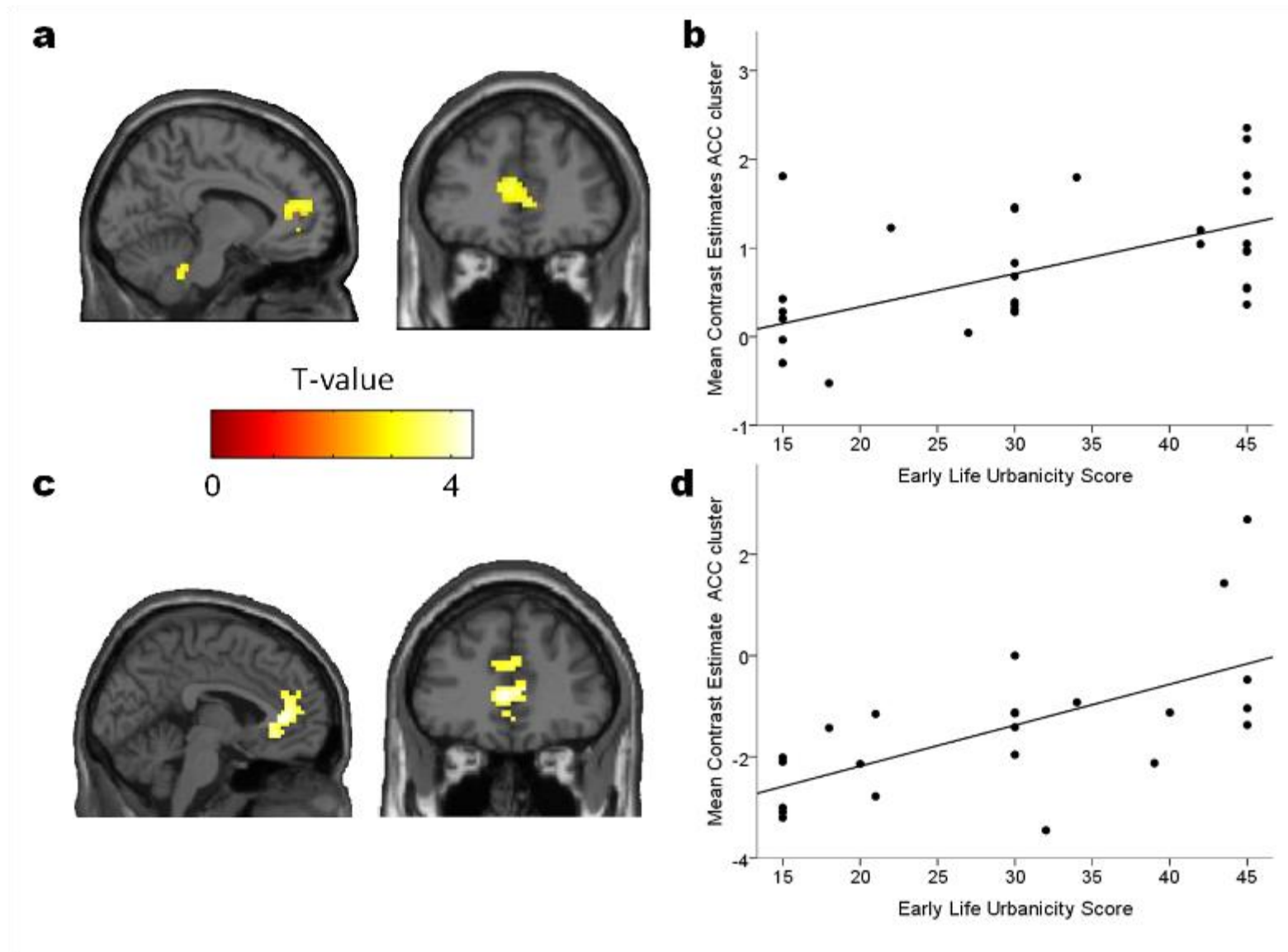
Data from:  
Crime in the United States 2009, FBI

	2005	
	Anzahl Fälle	HZ
bis unter 20.000 Einw.	47.155	135,8
20.000 bis unter 100.000 Einw.	58.252	258,6
100.000 bis unter 500.000 Einw.	46.391	345,0
500.000 und mehr Einw.	60.886	512,5

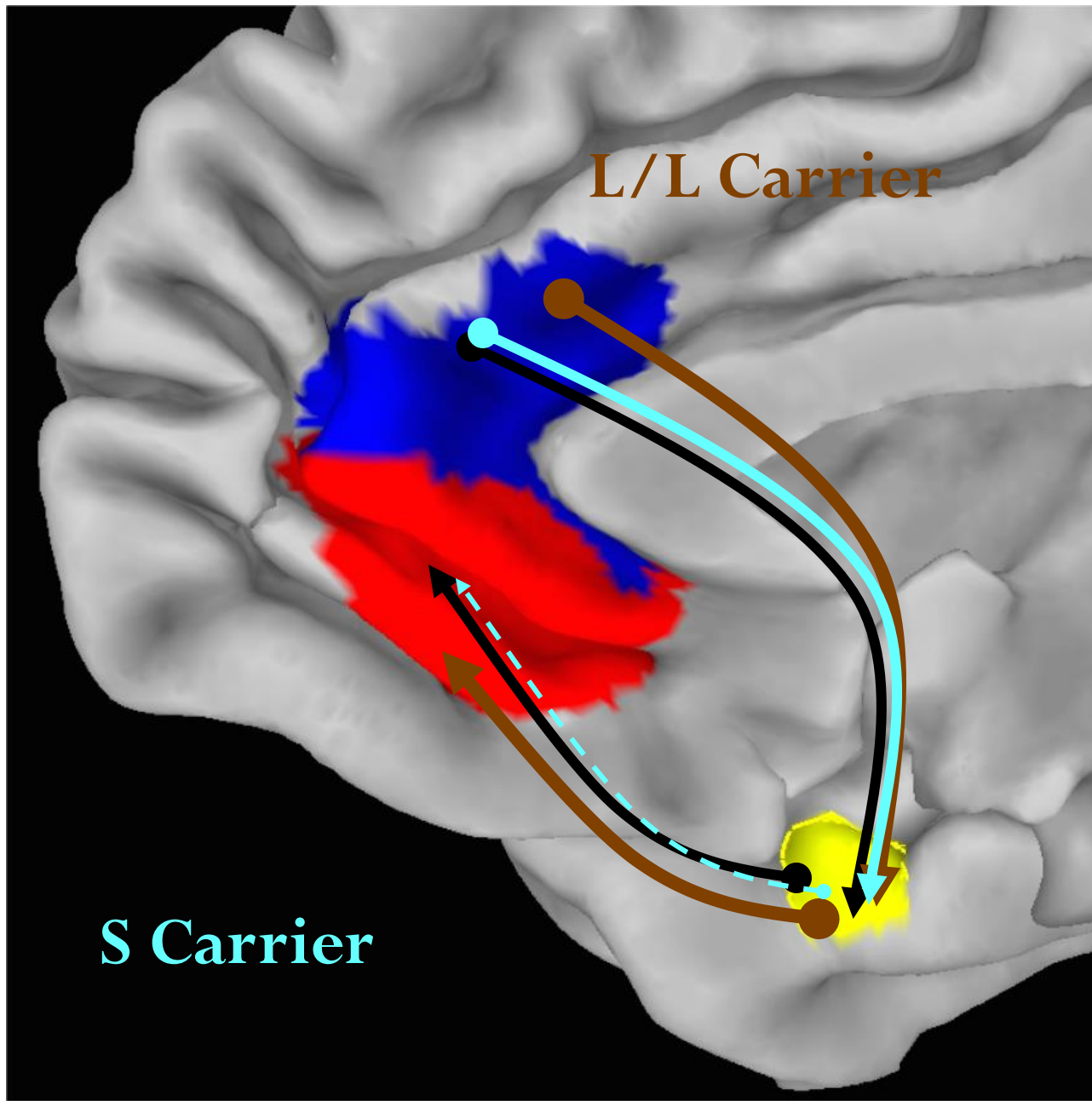
Second Periodical Report on Crime and Crime Control in Germany, 2006



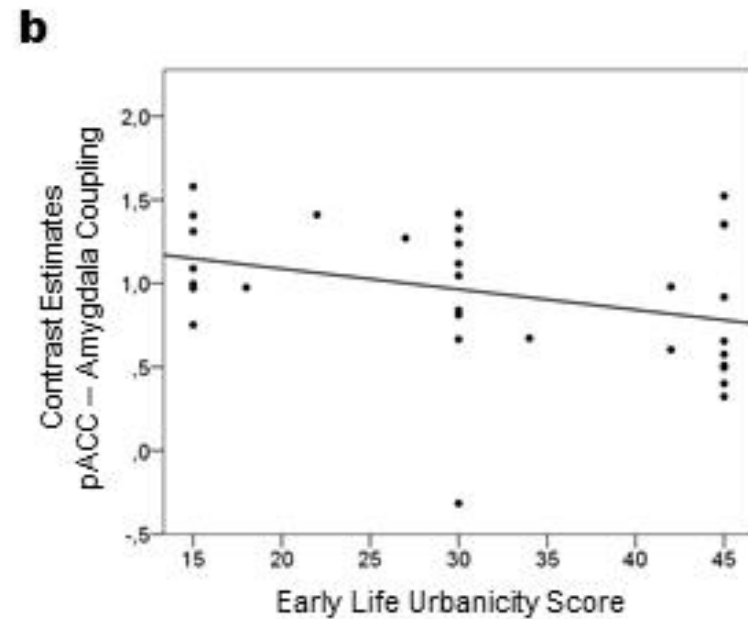
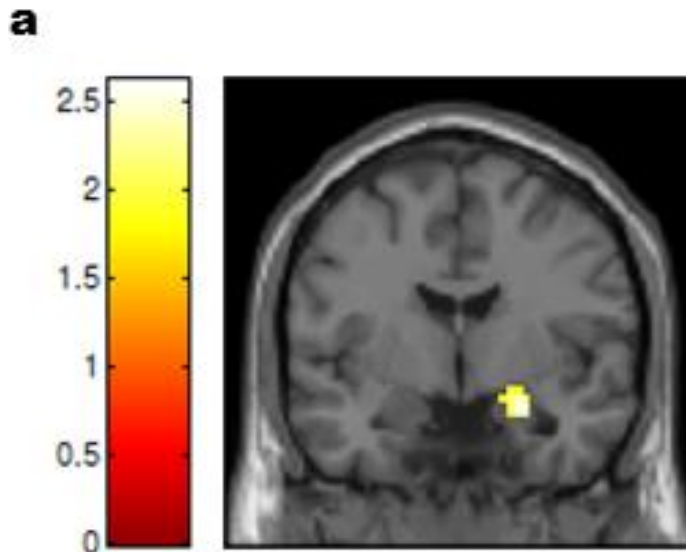
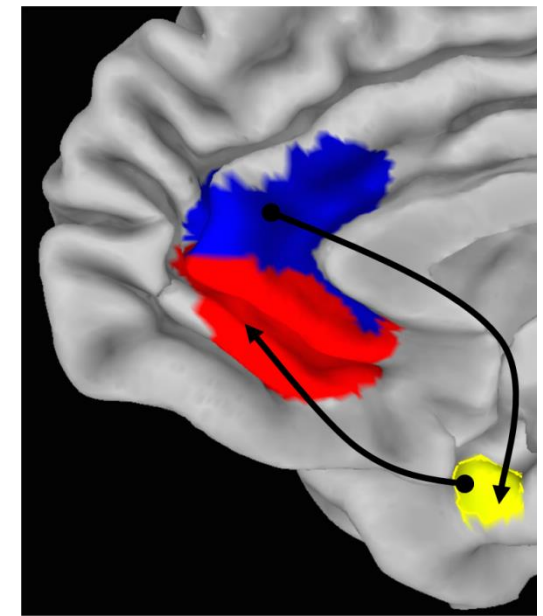
# Stadtgeburt und Zingulum



Lederbogen, Kirsch, Haddad et al., **Nature** 2011



# Stadtgeburt und cingulum-Amygdala-Interaktionen

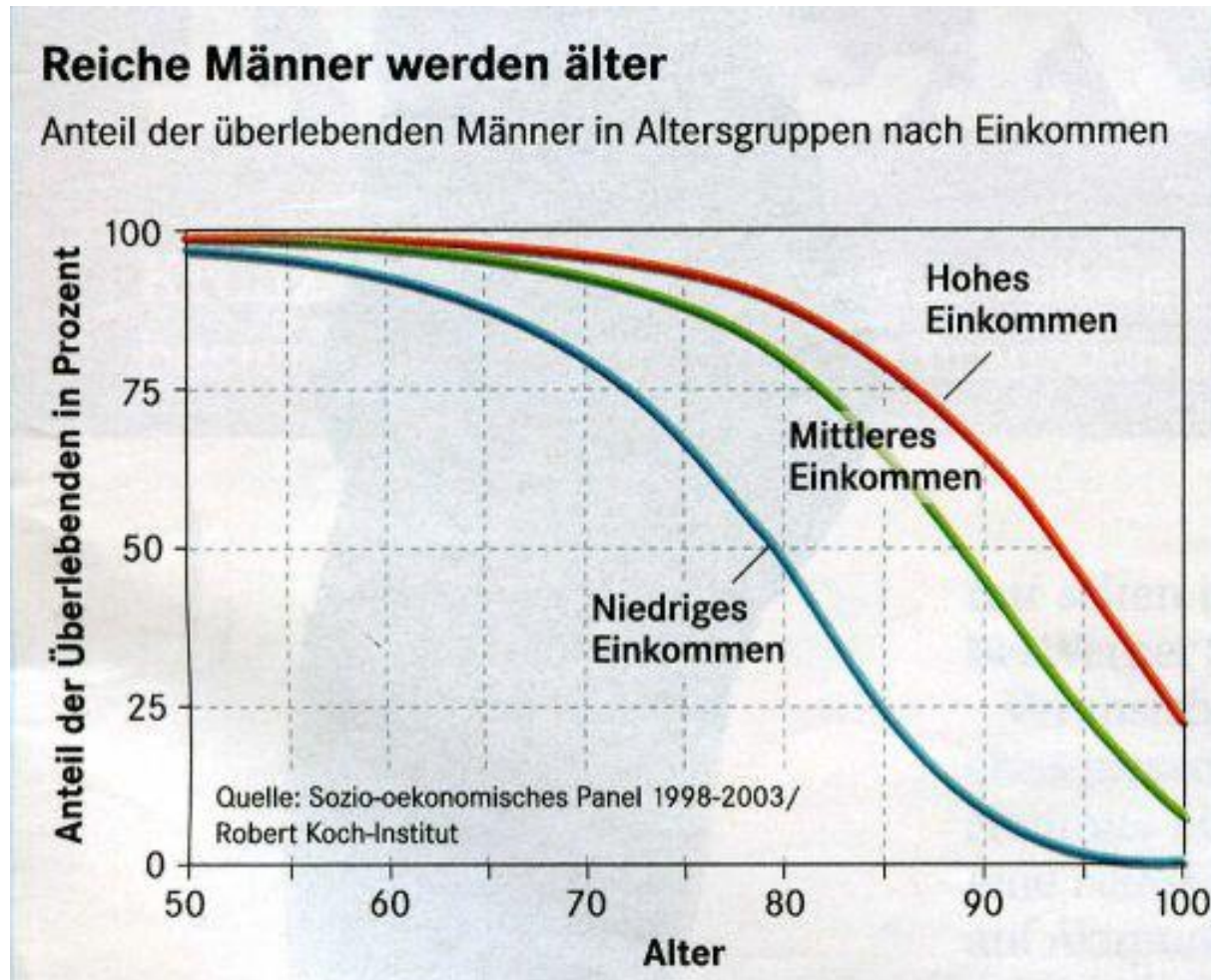


# Sozialer Status



- Ubiquitär im Tierreich, allen Kulturen
- Eindeutig mit Erkrankungs- und Mortalitätsrisiko verknüpft
- Hoher Status gut in stabilen, stressreich in instabilen Hierarchien
- Social defeat: Risikofaktor für Gewaltverhalten (Amok!)

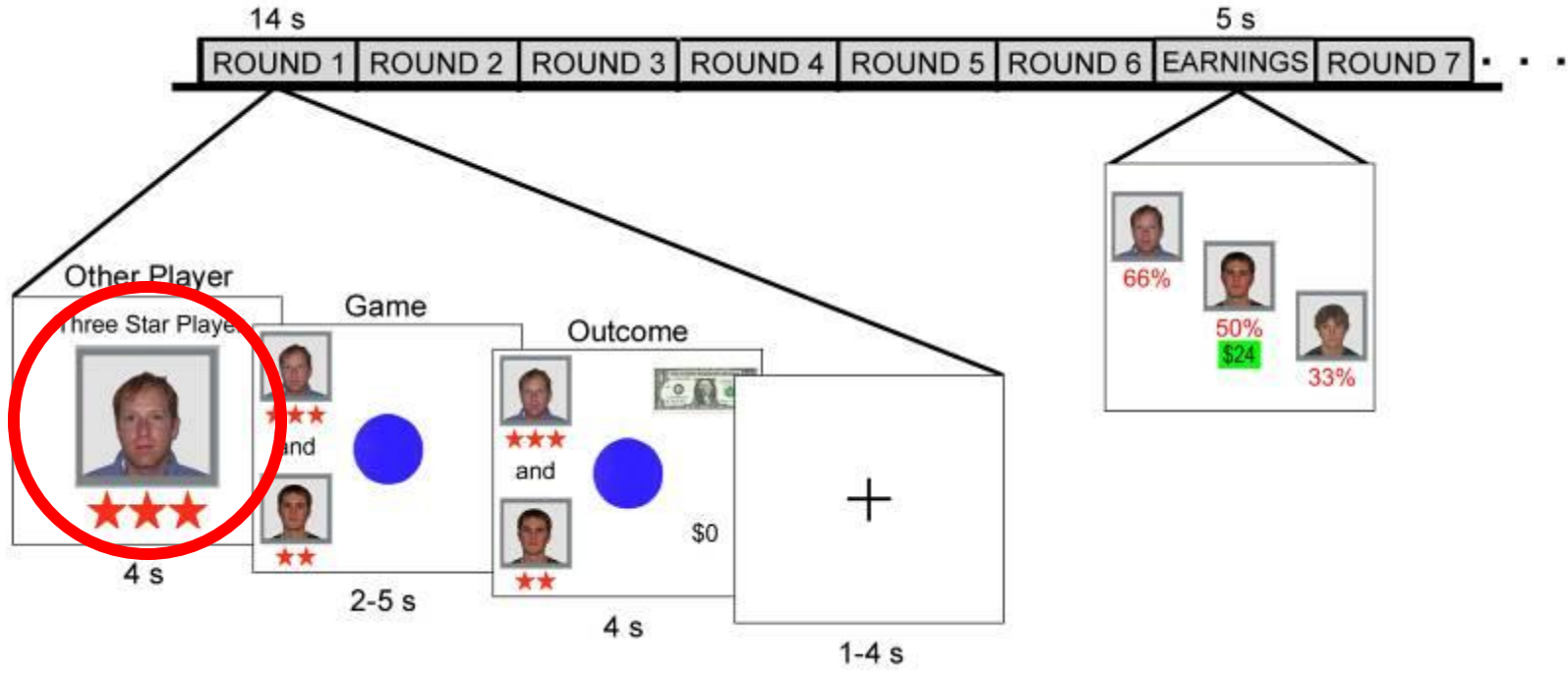
# Sozioökonomischer Status und Lebensspanne





# Soziale Hierarchie im fMRT-Scanner

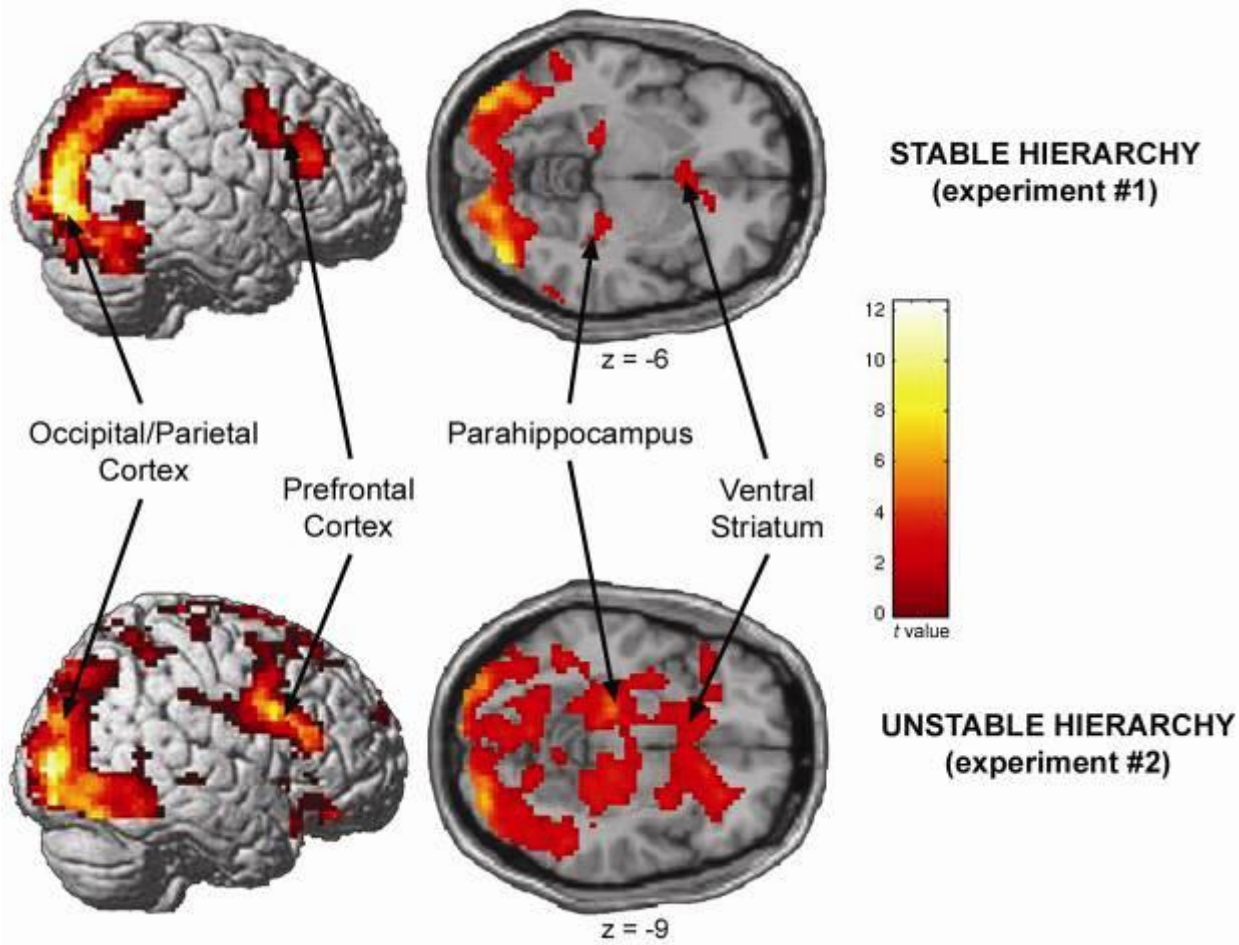
## EXPERIMENT #1: TASK DESIGN



# Stabile vs. Instabile Soziale Hierarchien

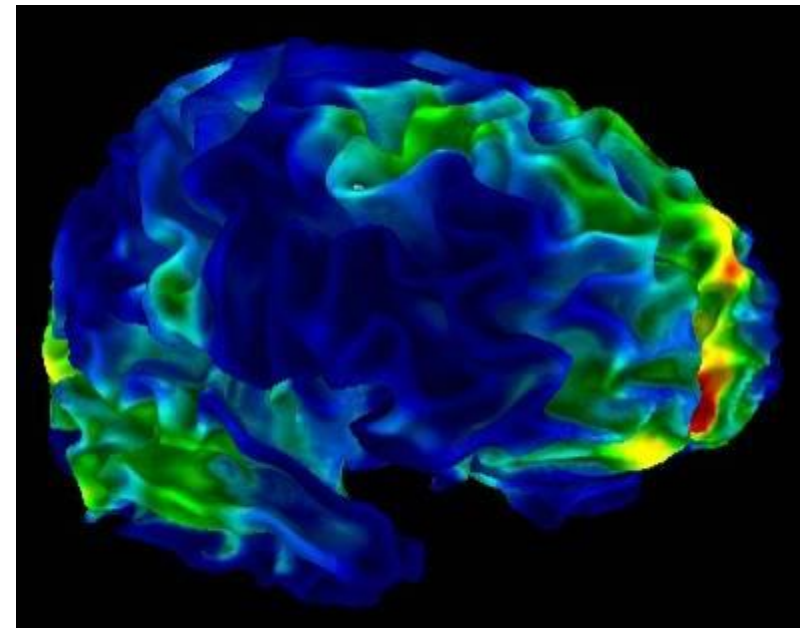
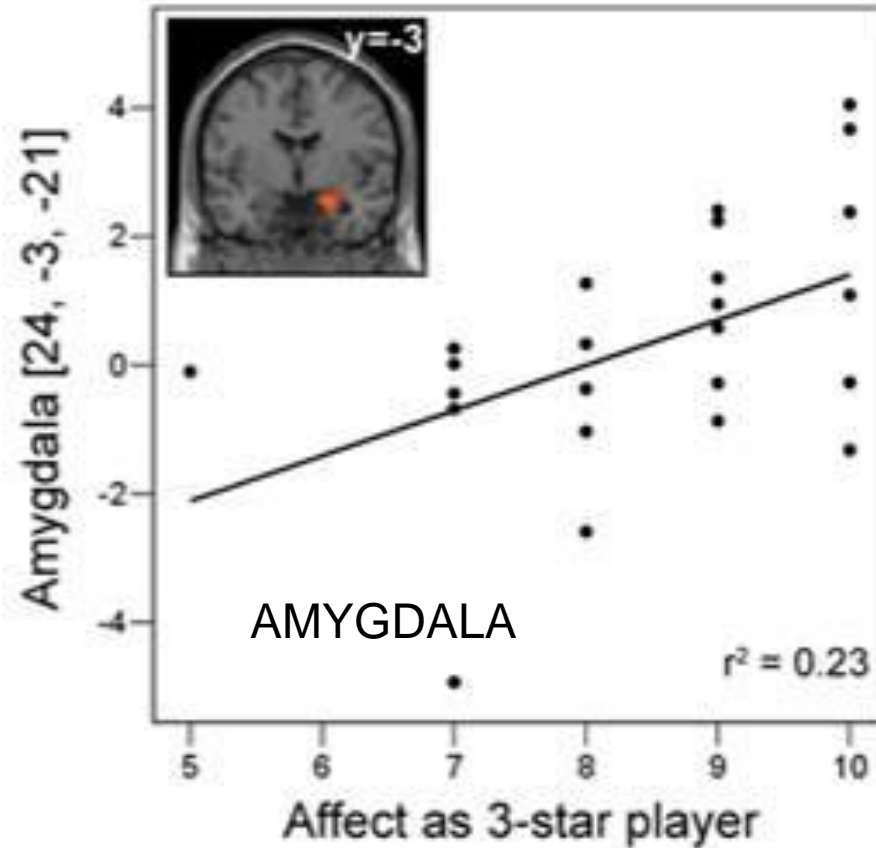
## SUPERIOR > INFERIOR

Nur "sozial höherstehende" Mitspieler werden neural representiert



Nur bei *instabilen* sozialen Hierarchien:  
emotionale Areale

SUPERIOR > INFERIOR



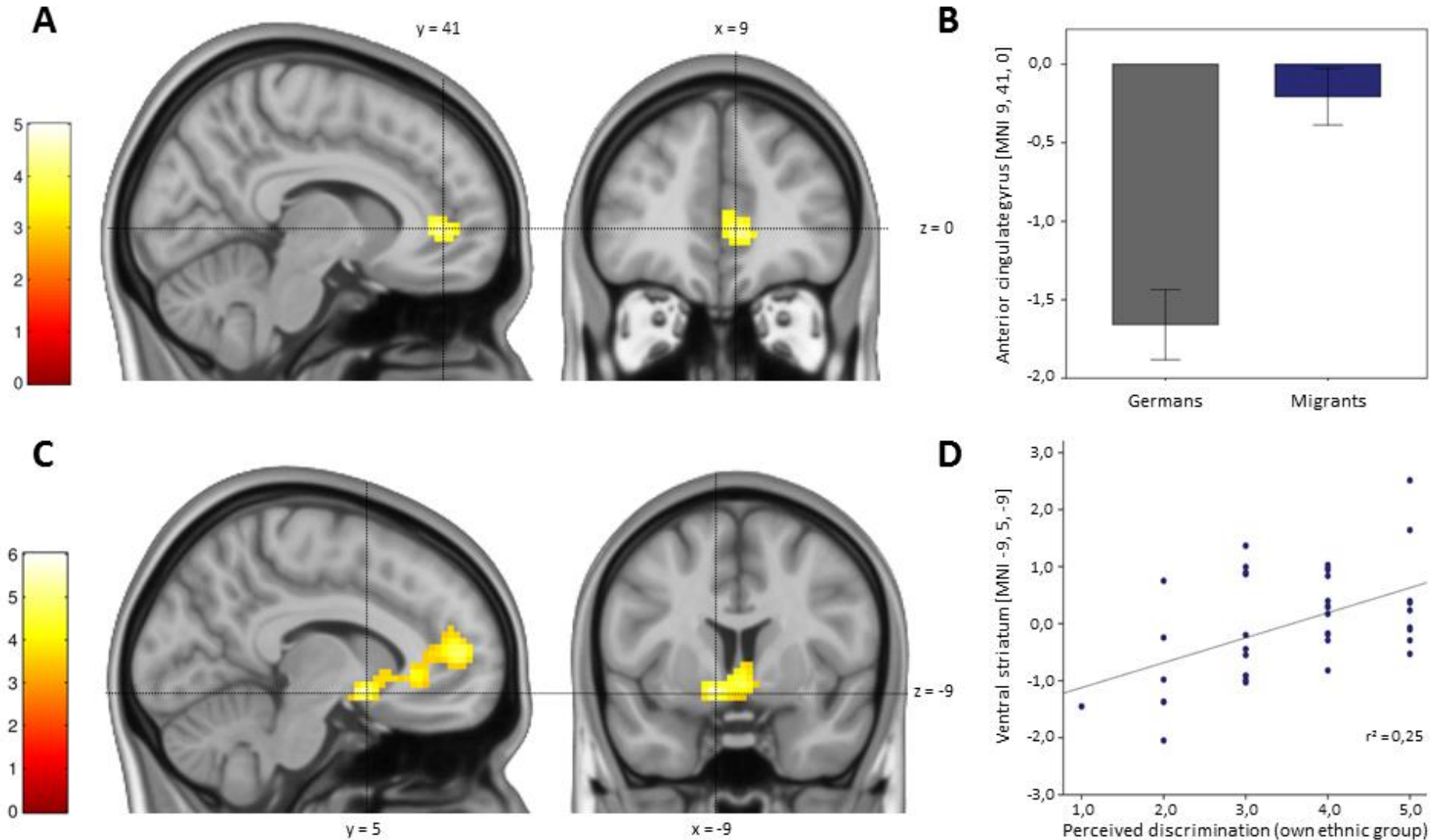
MPFC (BA 10)

# Migration und Schizophrenie



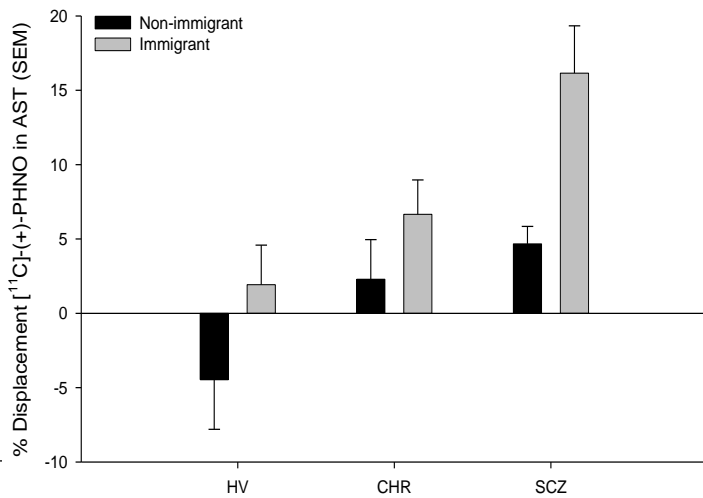
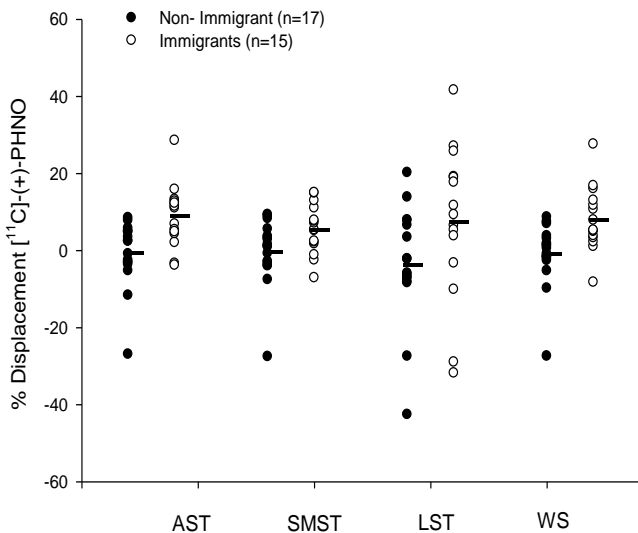
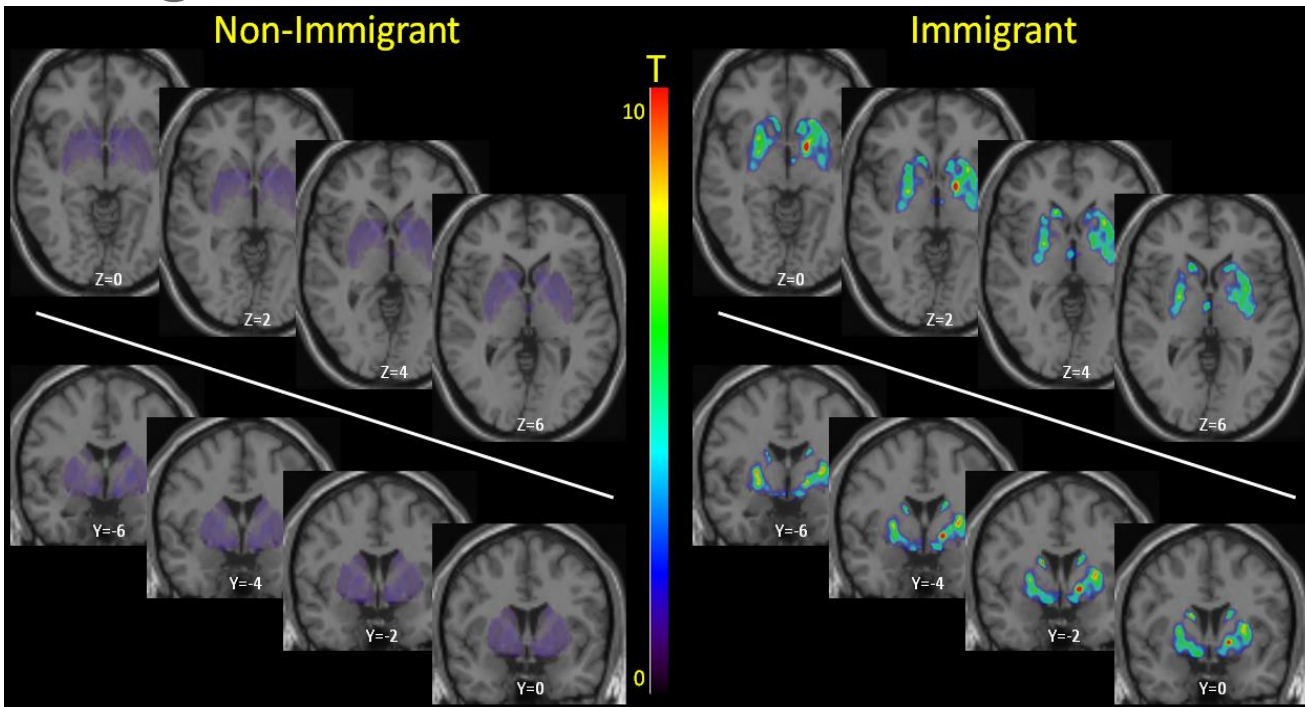
Cantor-Graae and Selten **Am J Psychiat** 2005

# Stressverarbeitung bei Migranten





# Streßinduzierte Dopaminausschüttung bei Migranten



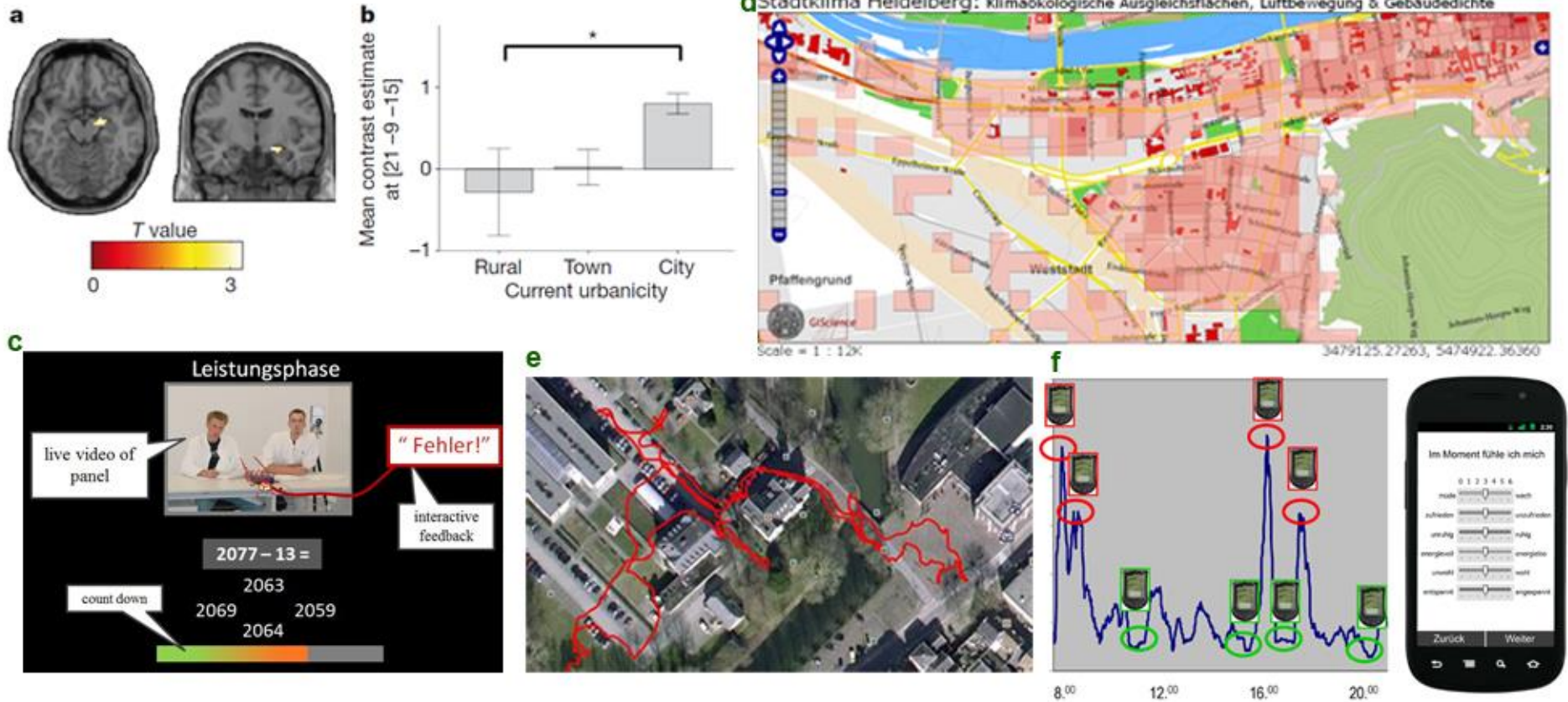
Mizrahi\*,  
McKenzie\*,  
Rusjan\* et al.,  
**submitted**

# Ursachen ?





# Neurogeographie



# STRESS AND THE CITY

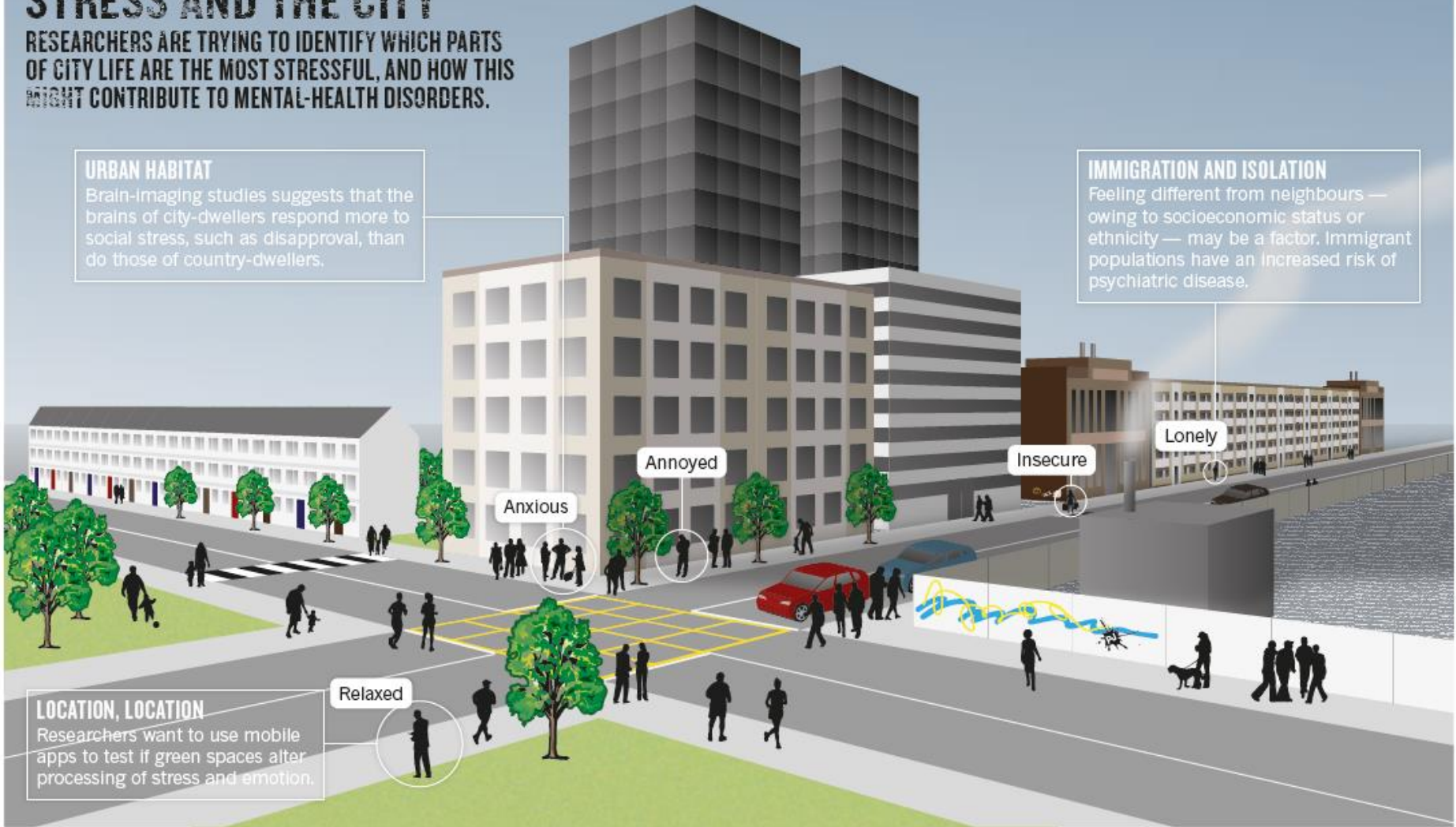
RESEARCHERS ARE TRYING TO IDENTIFY WHICH PARTS OF CITY LIFE ARE THE MOST STRESSFUL, AND HOW THIS MIGHT CONTRIBUTE TO MENTAL-HEALTH DISORDERS.

## URBAN HABITAT

Brain-imaging studies suggest that the brains of city-dwellers respond more to social stress, such as disapproval, than do those of country-dwellers.

## IMMIGRATION AND ISOLATION

Feeling different from neighbours — owing to socioeconomic status or ethnicity — may be a factor. Immigrant populations have an increased risk of psychiatric disease.



Anxious

Annoyed

Insecure

Lonely

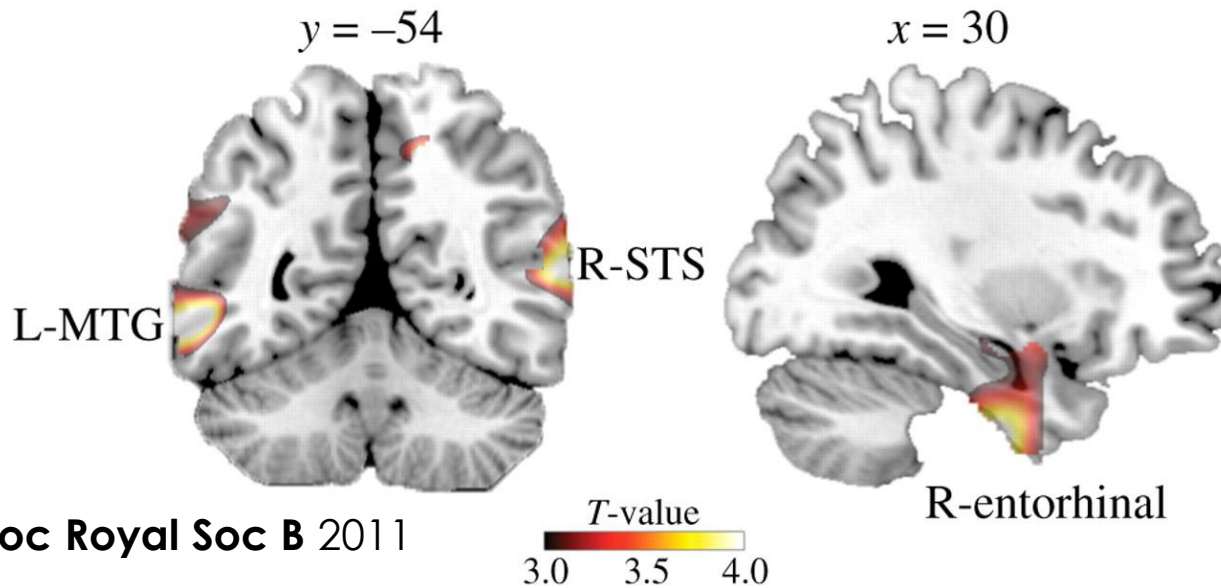
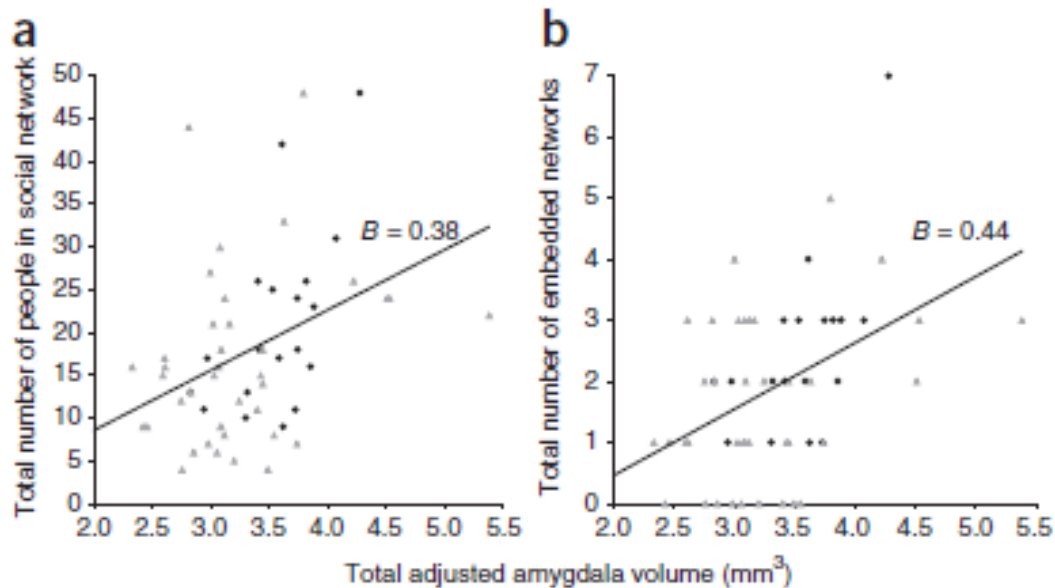
Relaxed

## LOCATION, LOCATION

Researchers want to use mobile apps to test if green spaces alter processing of stress and emotion.

# Schutzfaktor: Freunde

Bickart et al., **Nat Neurosci** 2010



Kanai et al., **Proc Royal Soc B** 2011



Auf die Beziehungen achten!



# Danke



Bundesministerium  
für Bildung  
und Forschung

Deutsche  
Forschungsgemeinschaft

**DFG**

**NIMH**

National Institute  
of Mental Health



SEVENTH FRAMEWORK  
PROGRAMME

**NARSAD**

The World's Leading Charity Dedicated  
to Mental Health Research

- Erstautoren, Mitarbeiter:  
Tost, Zink, Akdeniz, Pezawas,  
Lederbogen, Haddad, Kirsch,  
Heinrichs, Walter, Grimm,  
Nieratschker
- Lehrstuhl Psychiatrie, AG  
Systemische Neurowissenschaften



# Hypermethylierung von NR3C1 und Zingulum-Amygdala Konnektivität

