



Sleep disturbances and electrosensitivity

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N. Leitgeb: EPROS- Sleep Study
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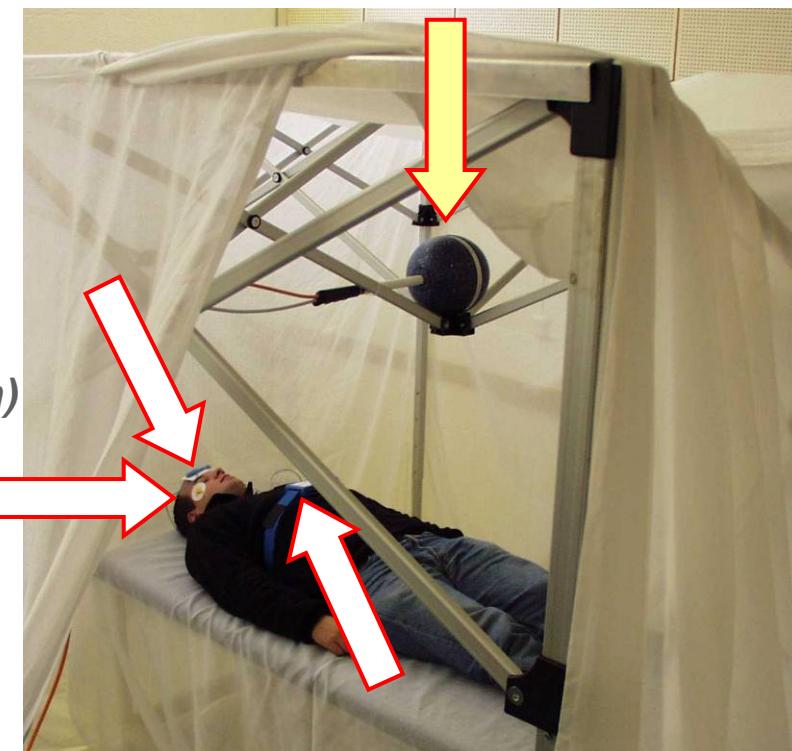
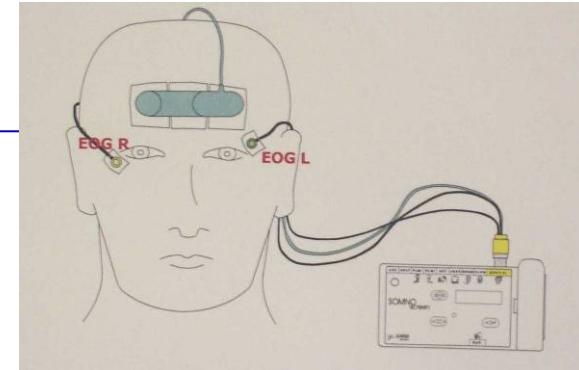
content

- study design
- electrosensitivity
- sleep and RF immission
- conclusion



Study design

- field study
- EMF shielding instead of provocation
- double-blind
(sham and verum indistinguishable)
- crossover
(control / sham / verum)
- test conditions in random order
- 10 nights / person
(1 familiarisation, 3 control, 3 verum, 3 sham)
- polysomnographic recordings
(EEG, EOG, ECG, movement)
- subjective sleep quality
(SSA-morning questionnaire)
- continuous RF recording
(80MHz - 3GHz, frequency-selective)



volunteers

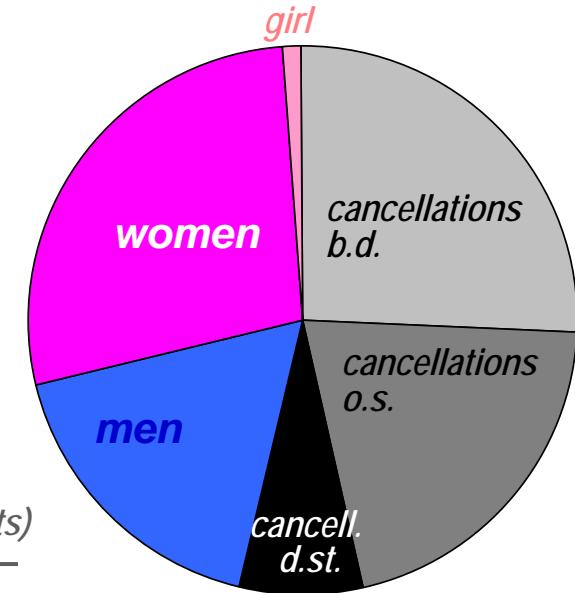
~ 600 interested,
(200 immediately, 400 with time)

97 volunteers in study included

25 cancellations right before date

20 on-site cancellations at beginning

7 cancellations during investigations *(after few nights)*



45 completely investigated volunteers

17 men

26 women + 1 with inappropriate data quality

1 girl (10 years)

3 pilot study Austria

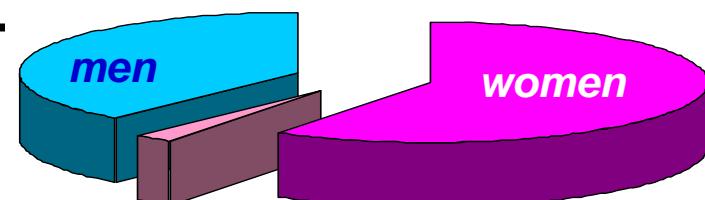
3 intermediate funding by FGF

3 intermediate funding by government of province Vorarlberg

20 EPROS- Austria (BMLFUW, BMVIT)

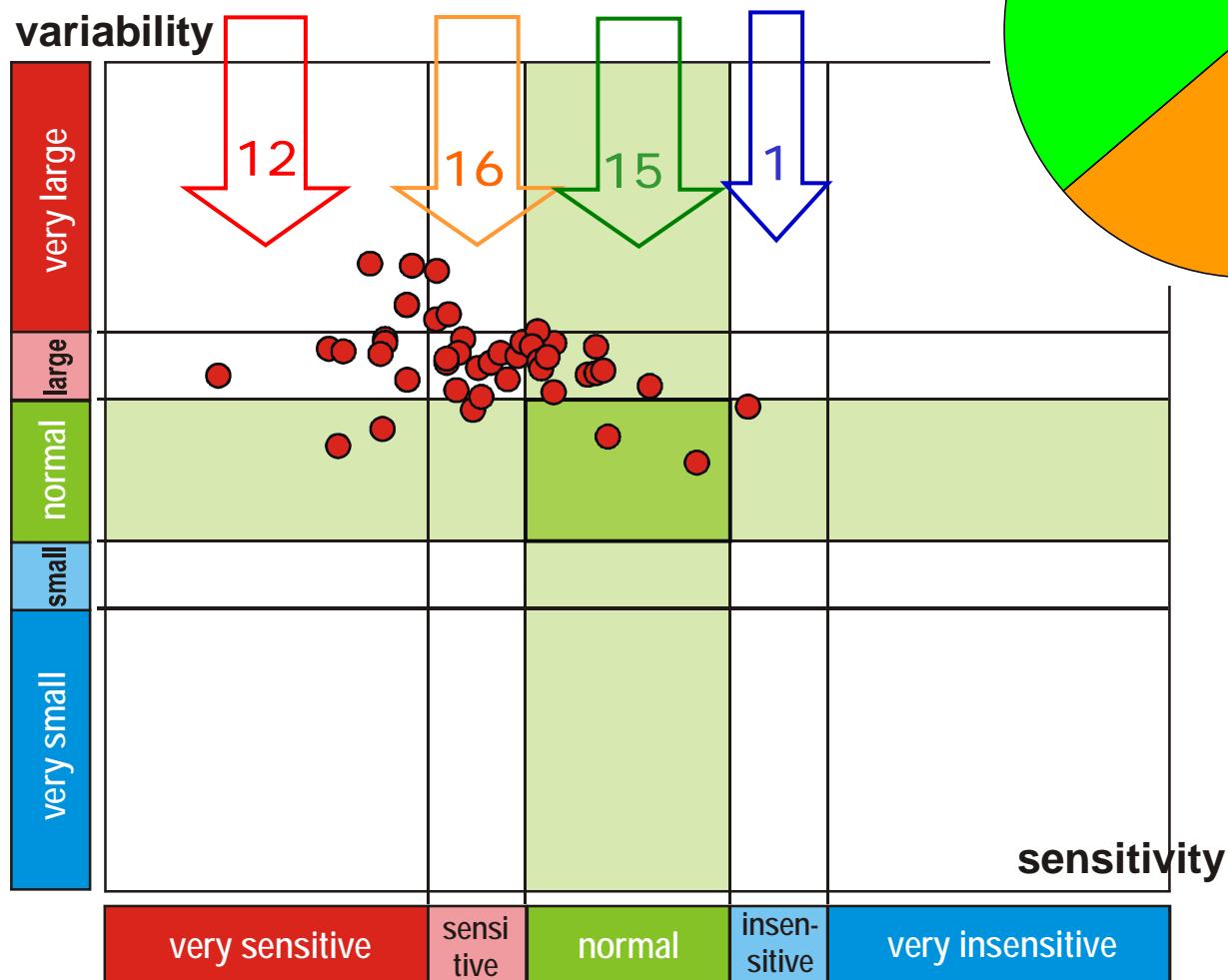
15 EPROS- Germany (GMTRP-BfS)

44 ... total (17 men, 26 women, 1 girl)



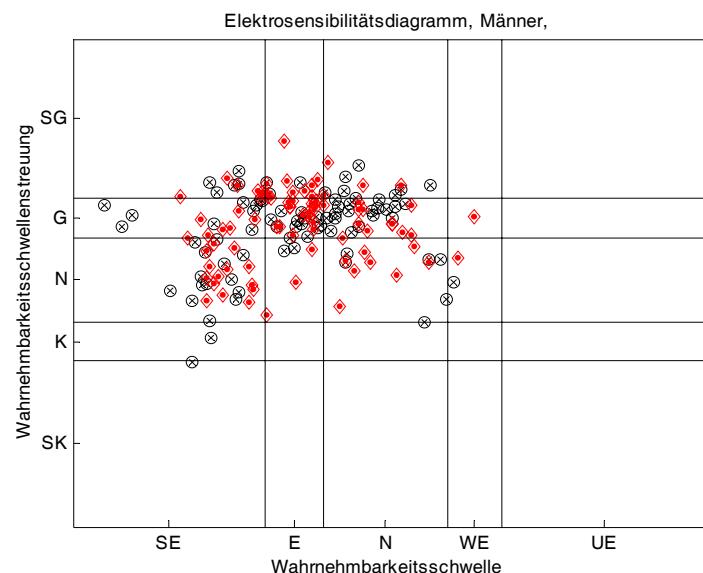
electrosensitivity

... increased, although no selection criterium

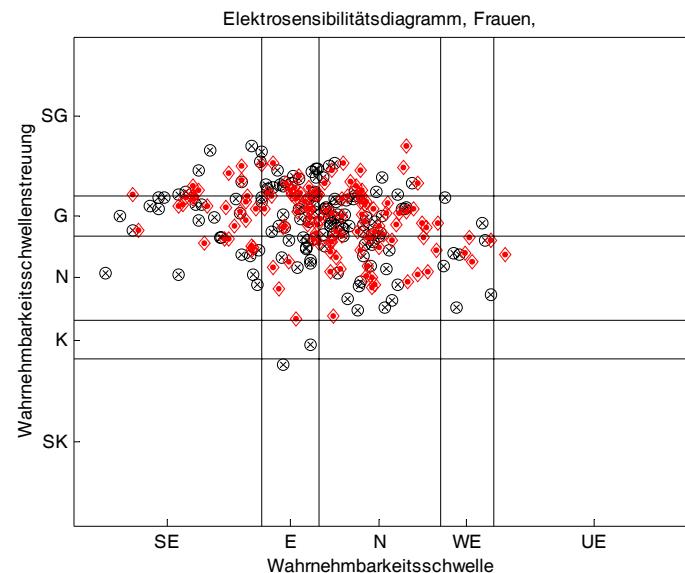


electrosensitivity

volunteers electrosensitive
although no selection criterium

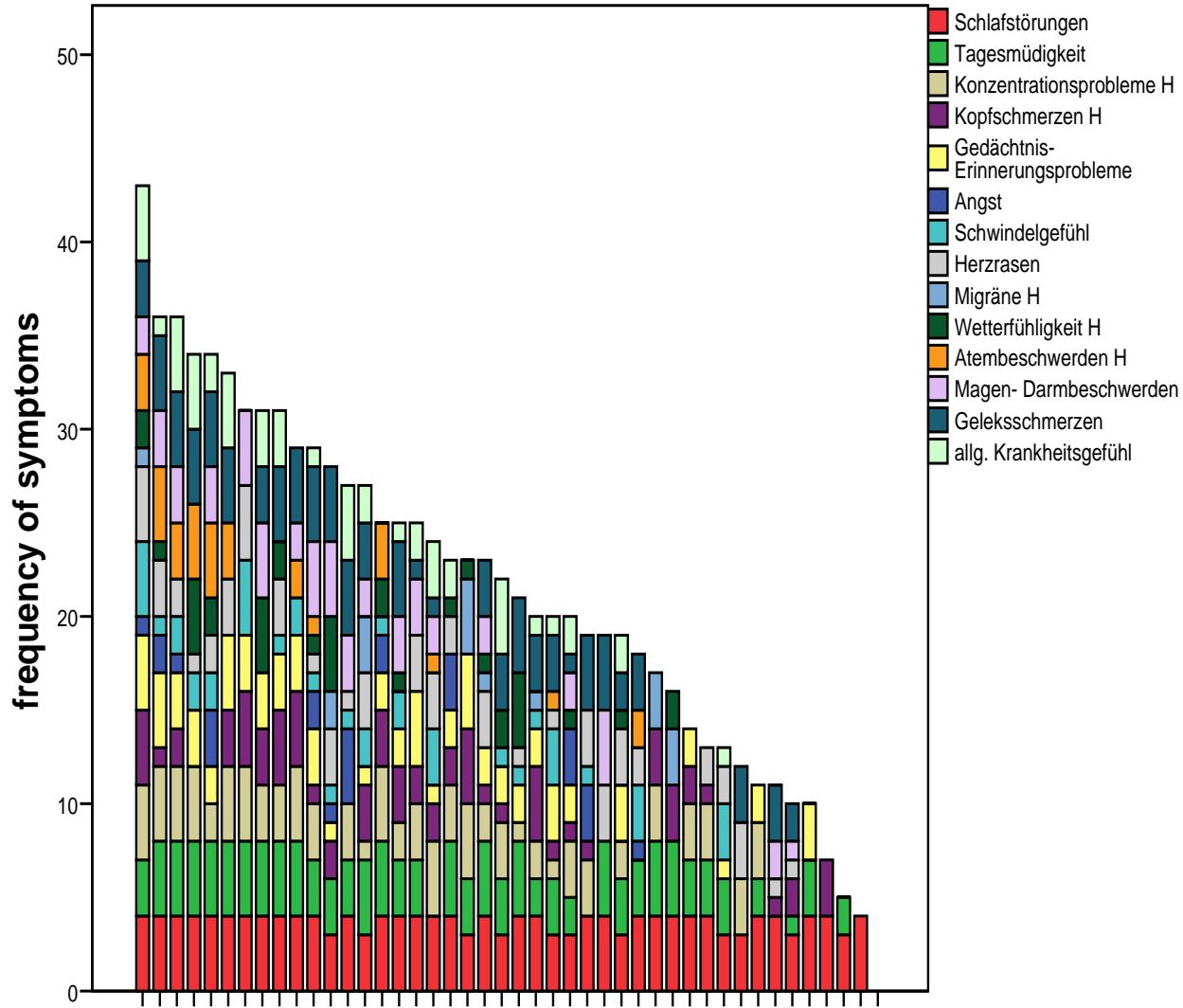


9 men



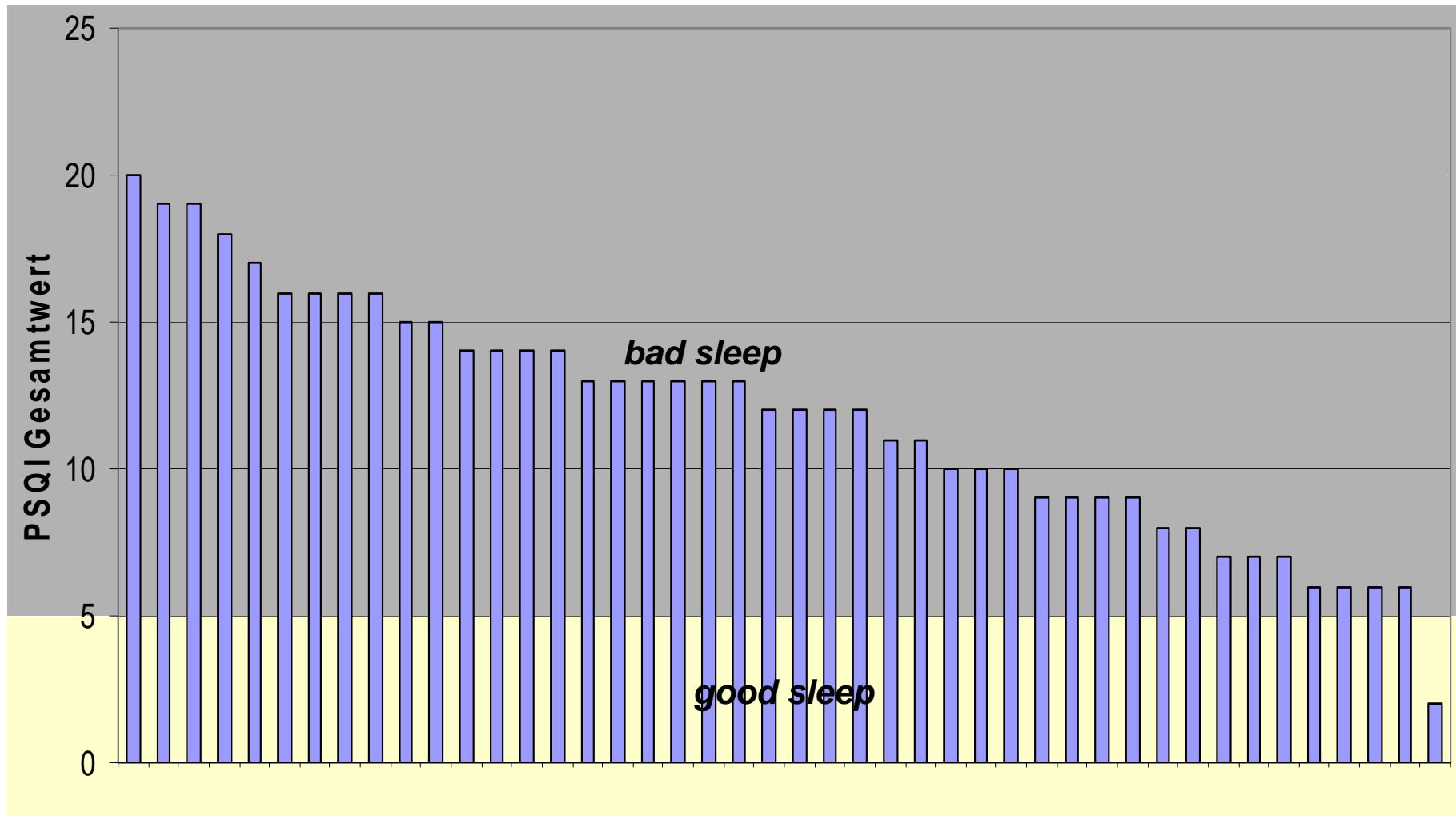
15 women

symptoms



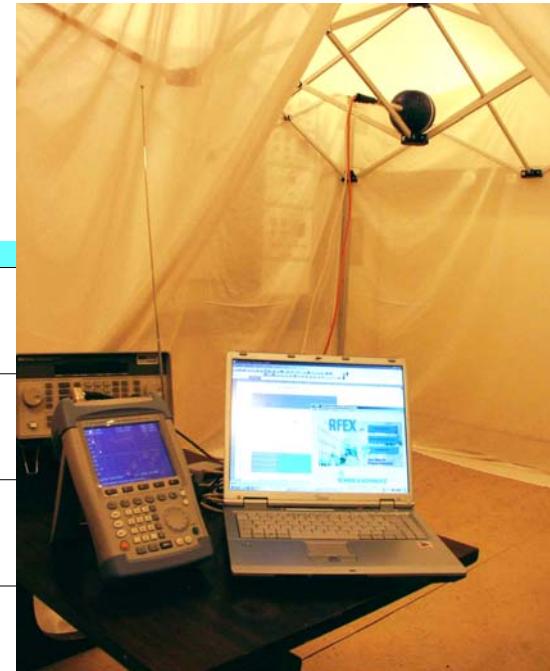
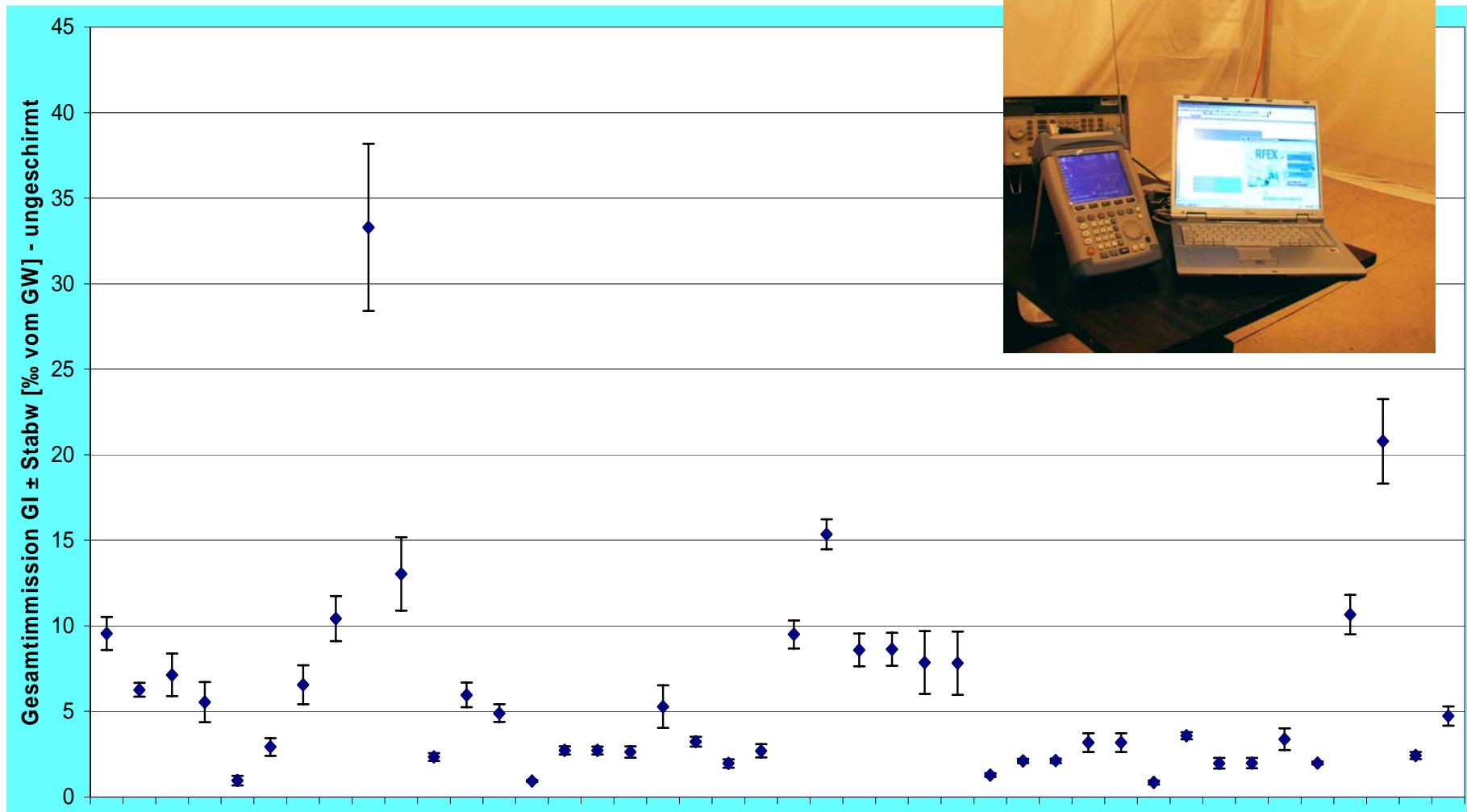
sleep disturbance

subjective sleep quality- assessment (PSI-questionnaire)

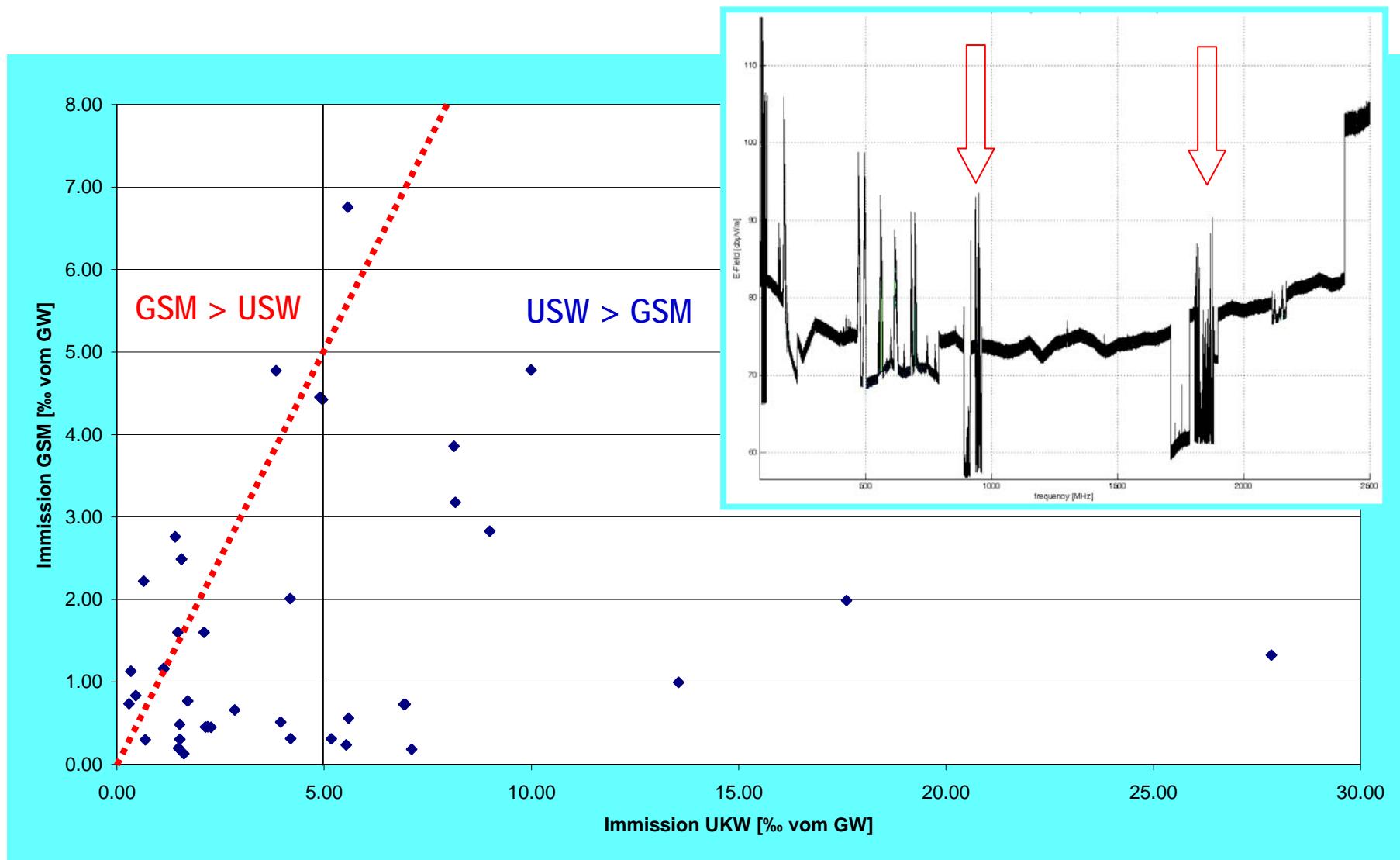


immissions

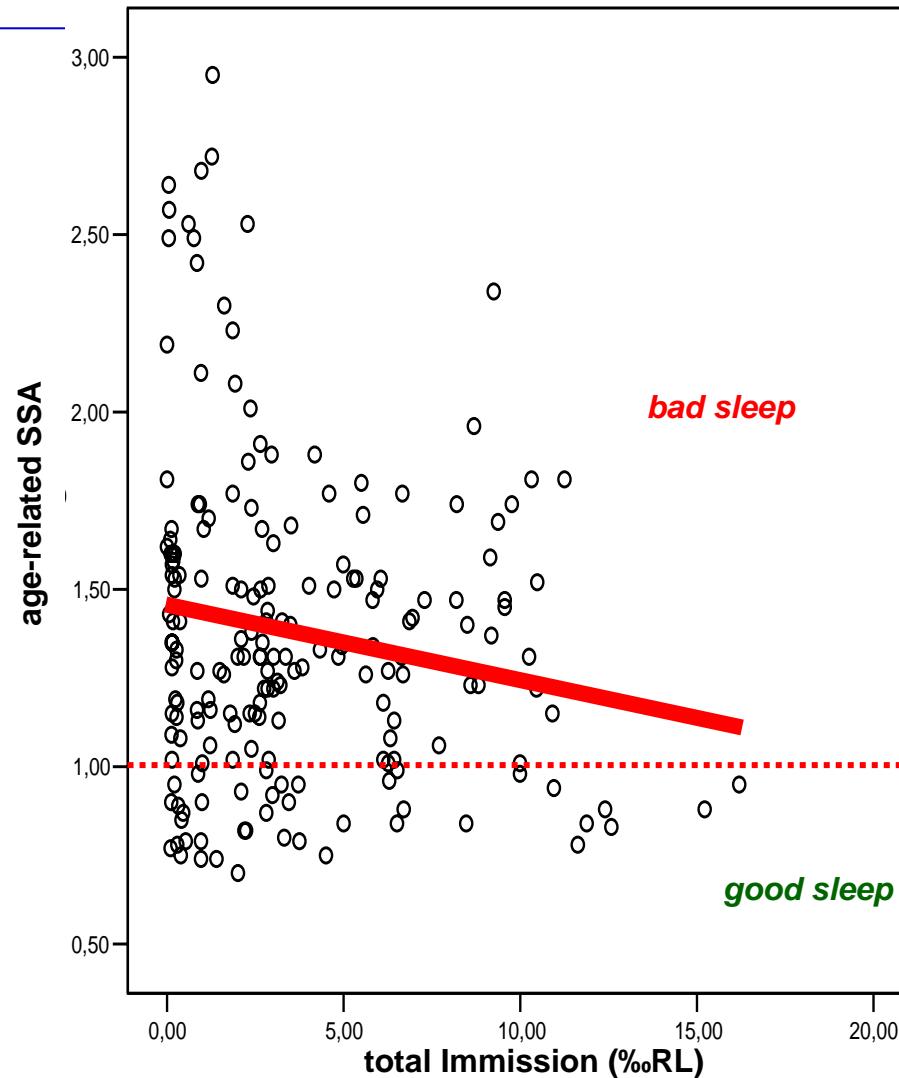
→ total immission low: < 4%



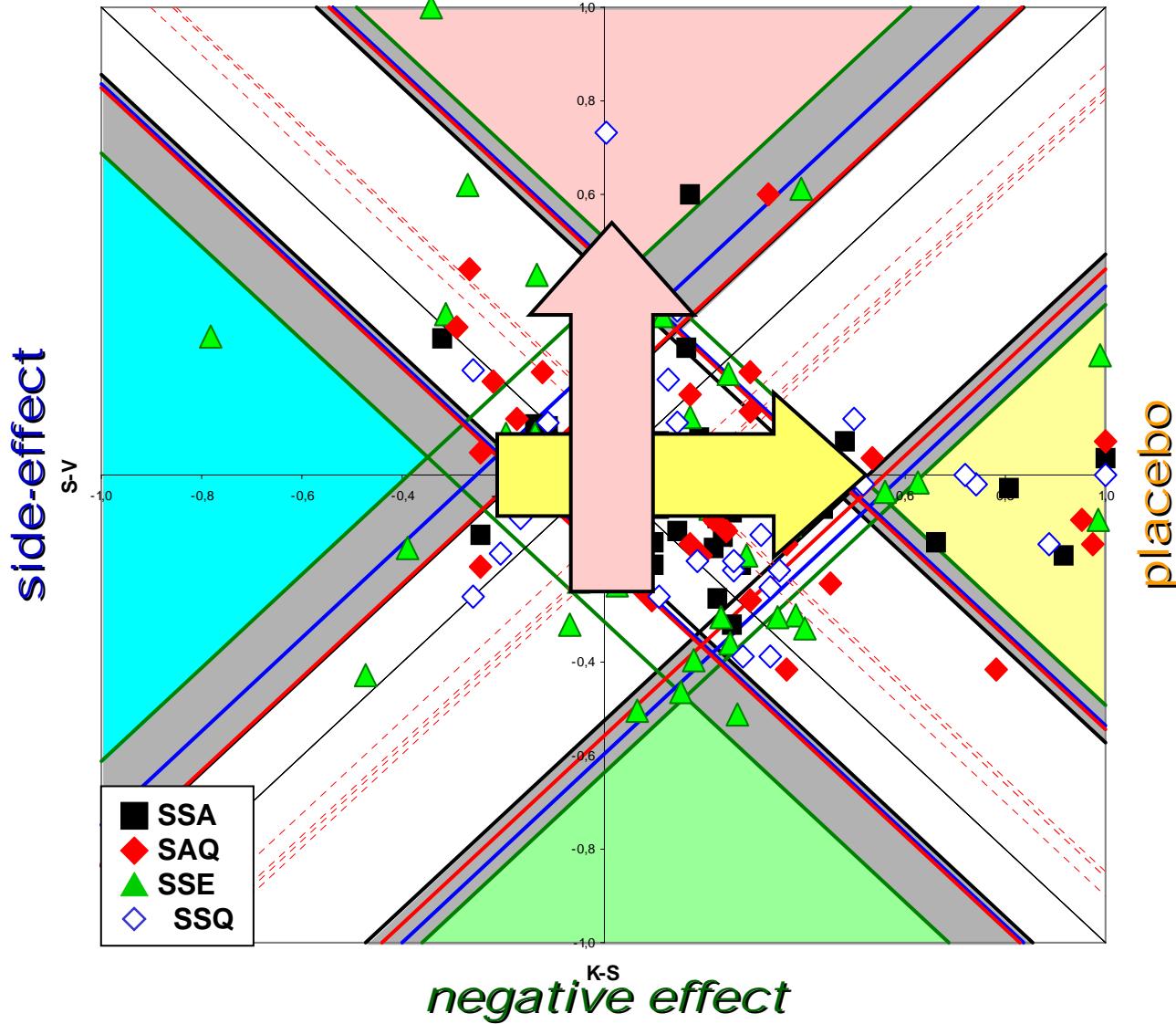
telecommunication or broadcasting?



HF-Immission



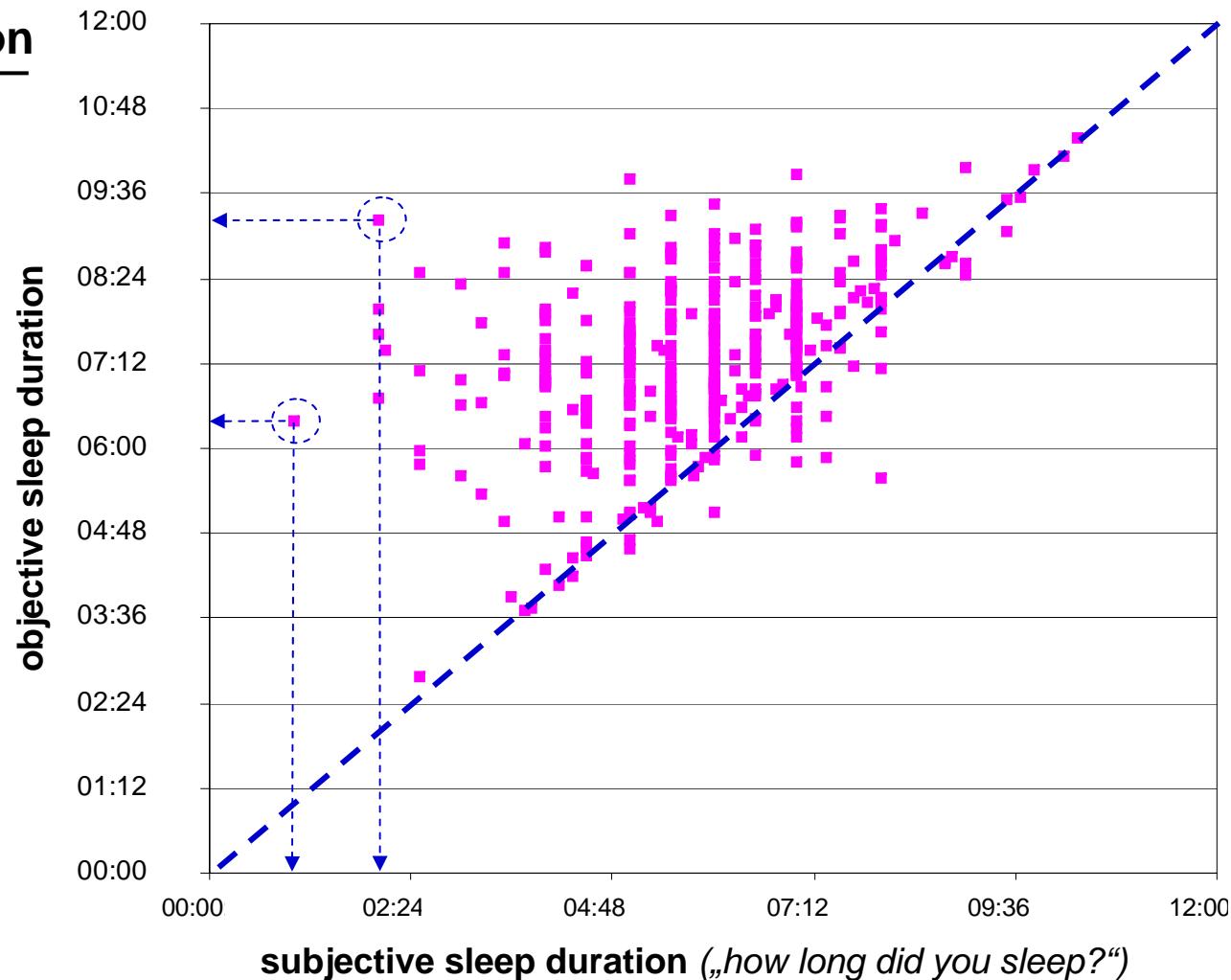
subjective sleep assessment effect



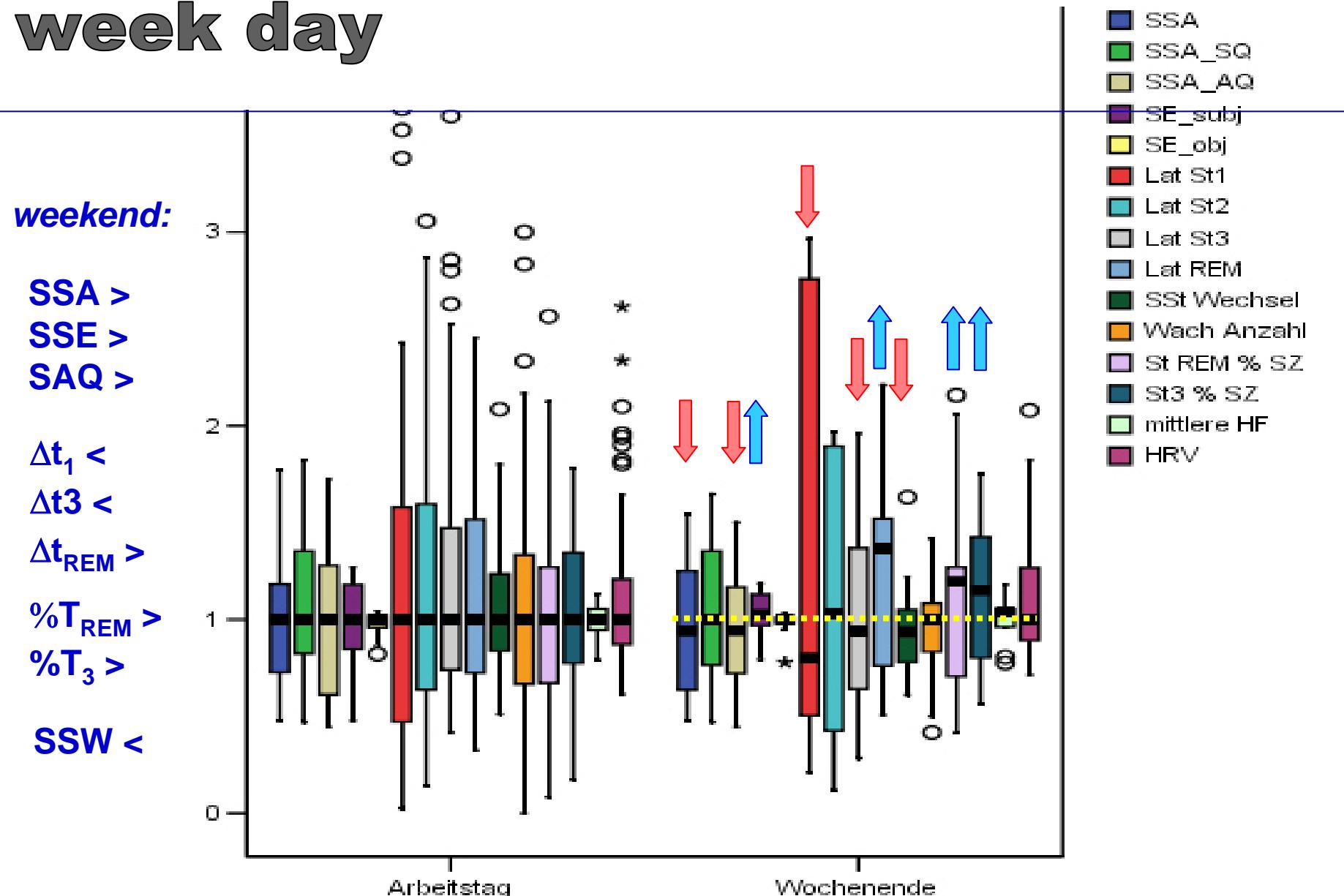
SSE

reliability

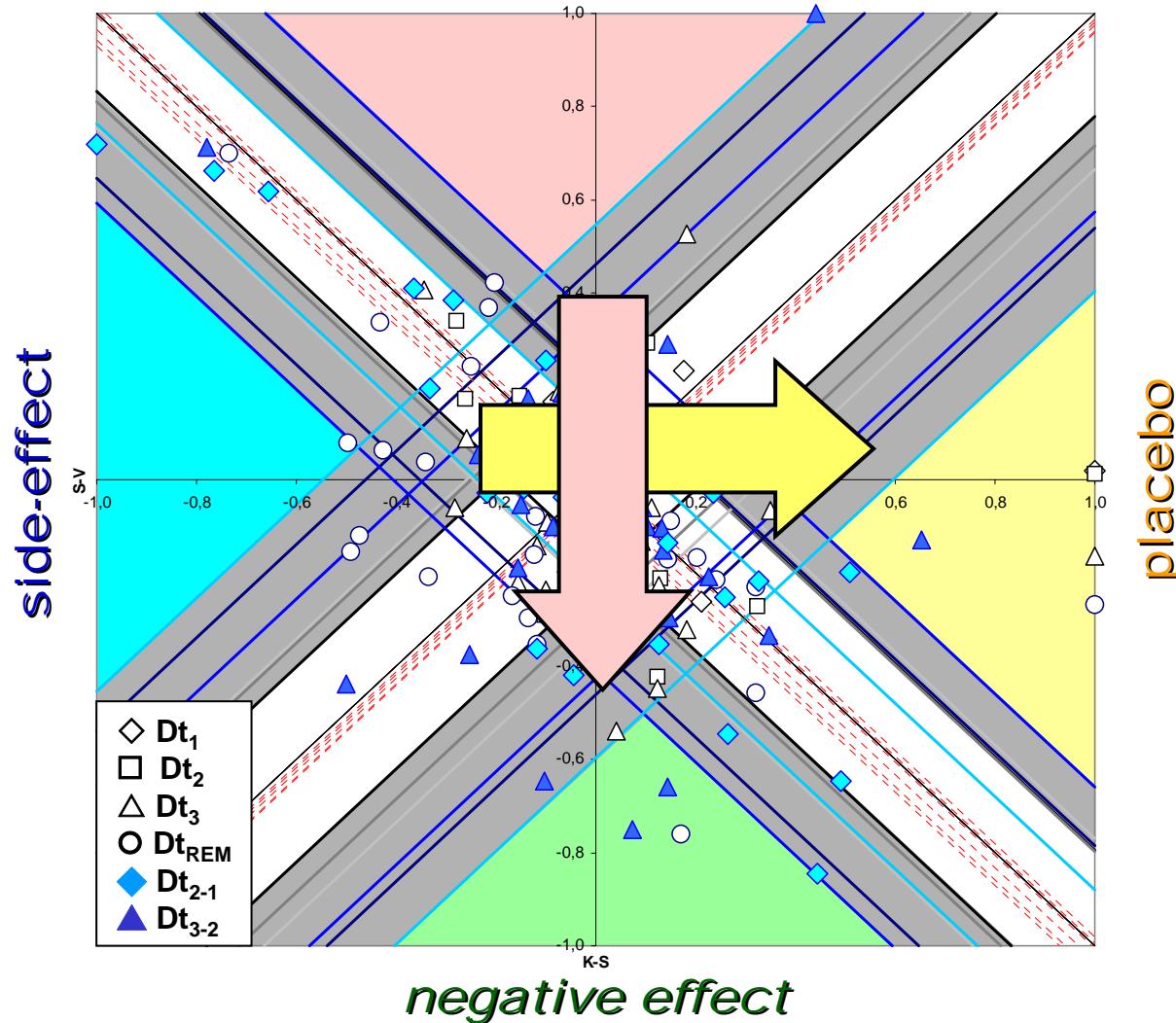
sleep duration
time in bed



week day



objective sleep latencies *effect*



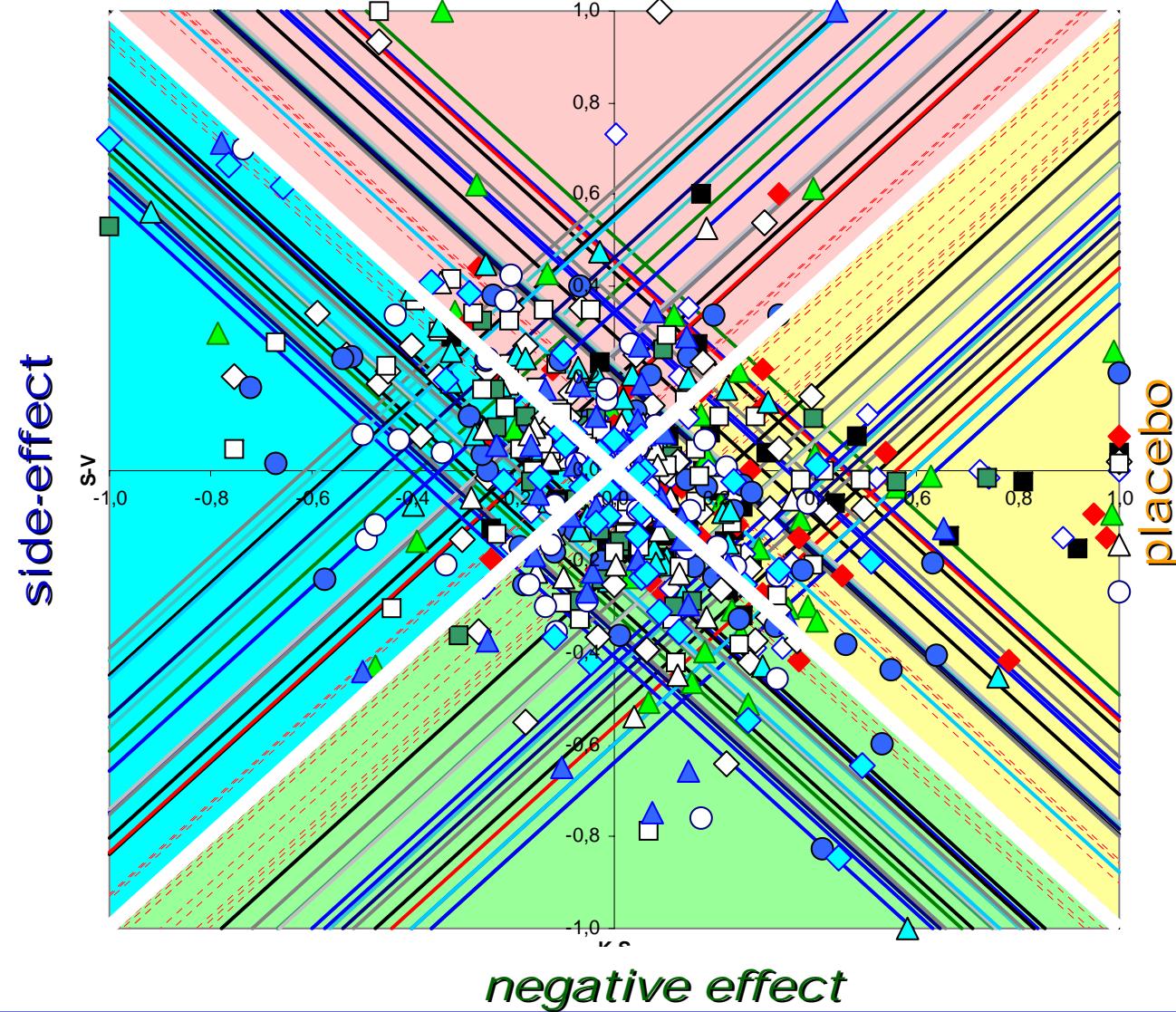
all sleep parameters

effect

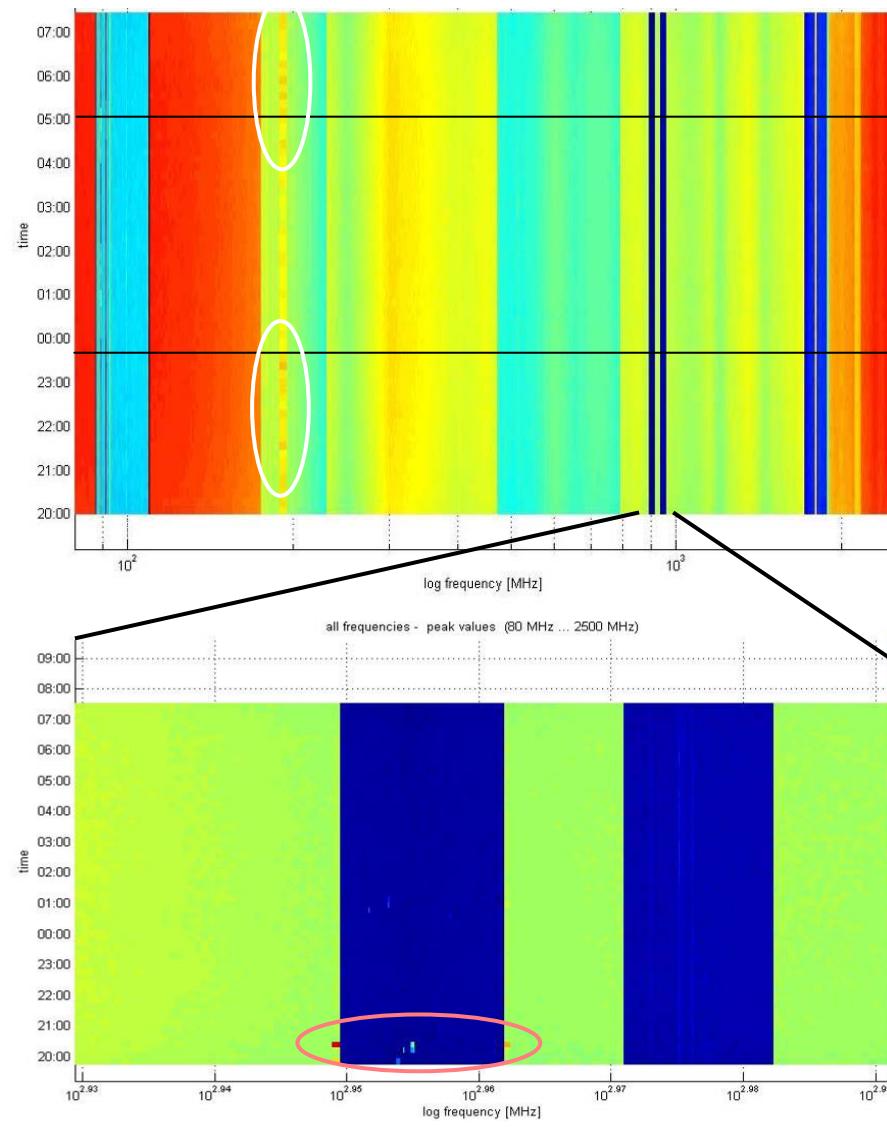
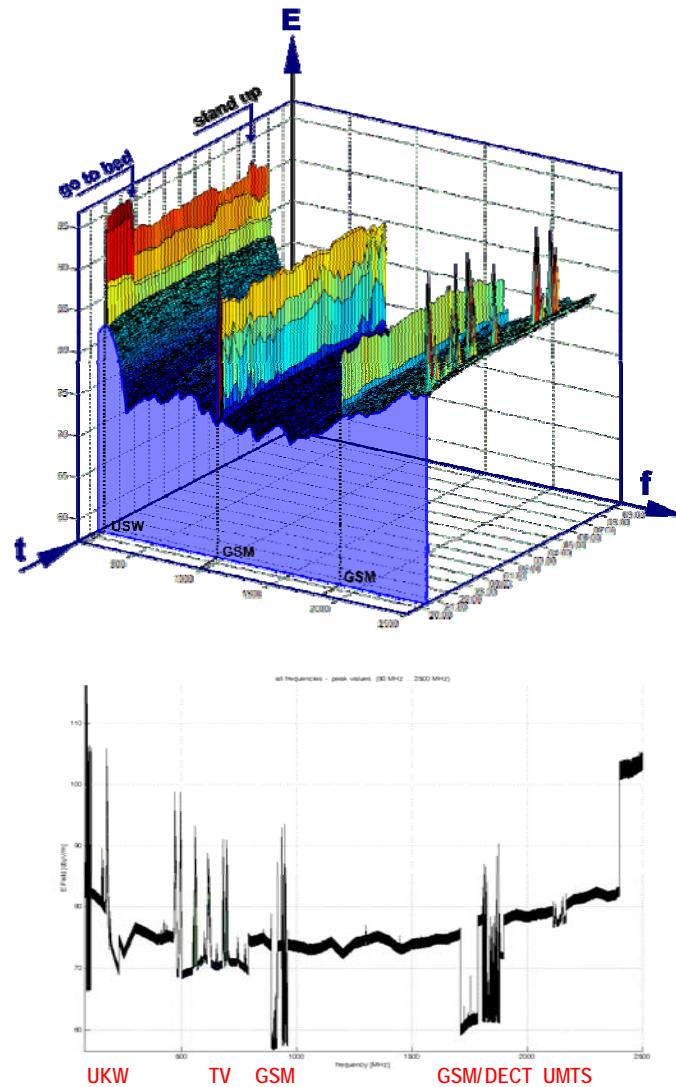
- SSA
- ◆ SAQ
- ▲ SSE
- ◇ SSQ

- ◊ Dt₁
- Dt₂
- △ Dt₃
- Dt_{REM}
- ◆ Dt₂₋₁
- ▲ Dt₃₋₂

- ◊ SSW
- WA
- %REM
- ▲ %S3
- OSE



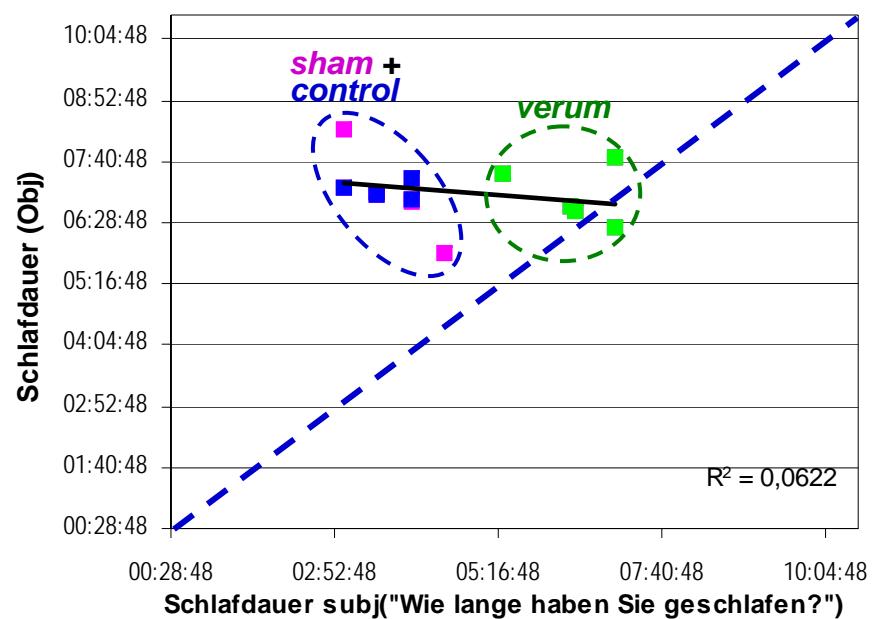
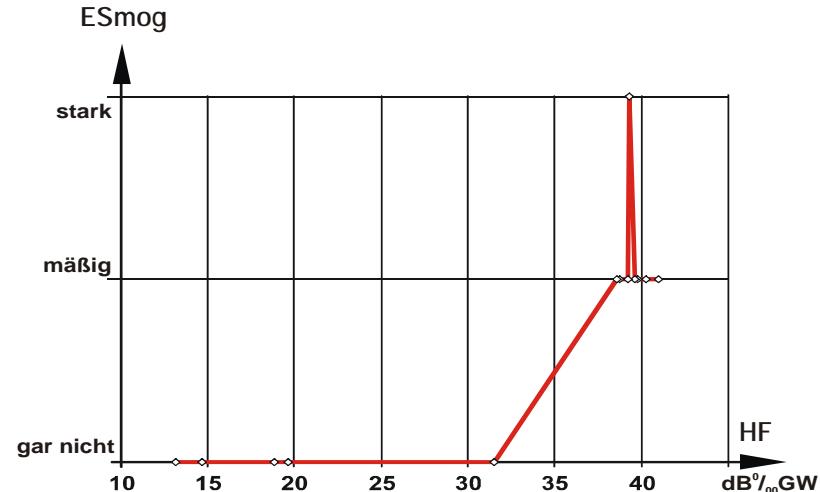
immission monitoring



manipulation check #s6

✗

ESmog-sensation



summary

- worst-case volunteers
- electrosensitivity: co-parameter
- most volunteers: no effect
- belief counts: many placebo effect
- shielding: positive and *negative* effects

