

**THE PSYCHOLOGICAL CONSEQUENCES
OF THE
CHERNOBYL DISASTER**

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- 25 years of controversy
- Health effects
- Psychological effects
- Lessons learnt

25 years of controversy

- 29 april 1986 reassuring messages from Soviet Union after alarming reports from Sweden
- New York Post, May 1986: 15.000 killed in mass grave
- Ministry of Health Ukraine 1992: 100.000 deaths
- Greenpeace video (2006) versus Animal planet: Life in the Dead Zone (2008)

http://www.youtube.com/watch?v=3u_8frR0IpE&feature=player_detailpage#t=143s

http://www.youtube.com/watch?v=zVv1vsZxV00&feature=player_detailpage#t=267s

Average cumulative radiation doses in affected populations

Population	Number of people	~ Dose (mSv)
Liquidators	600.000	~100
Evacuees	134.000	33
Strict control zone (>555 kBq/m ²)	270.000	>50
Mildly contaminated	5.000.000	10-20

NB normal back-ground radiation is 1-200 mSv p.a.

Profesional exposure limit is max 350mSv extra ~ max + 0,5% cancer risk

Chernobyl Forum

(WHO and IAEA, 2006)

Health effect until 2004:

- 134 cases of acute radiation sickness (28 killed, later another 19 (incl. other causes of death))
- 4000 cases of Thyroid cancer (15 deaths)
- No demonstrable congenital effects
- Statical models: ± 4000 additional cancer cases (on top of 100.000 normally expected cases)
- Predominantly psychological consequences

Cardis et al. 2011

- Evidence for increase in leucemia, cataracts and cardiovascular disease among liquidators

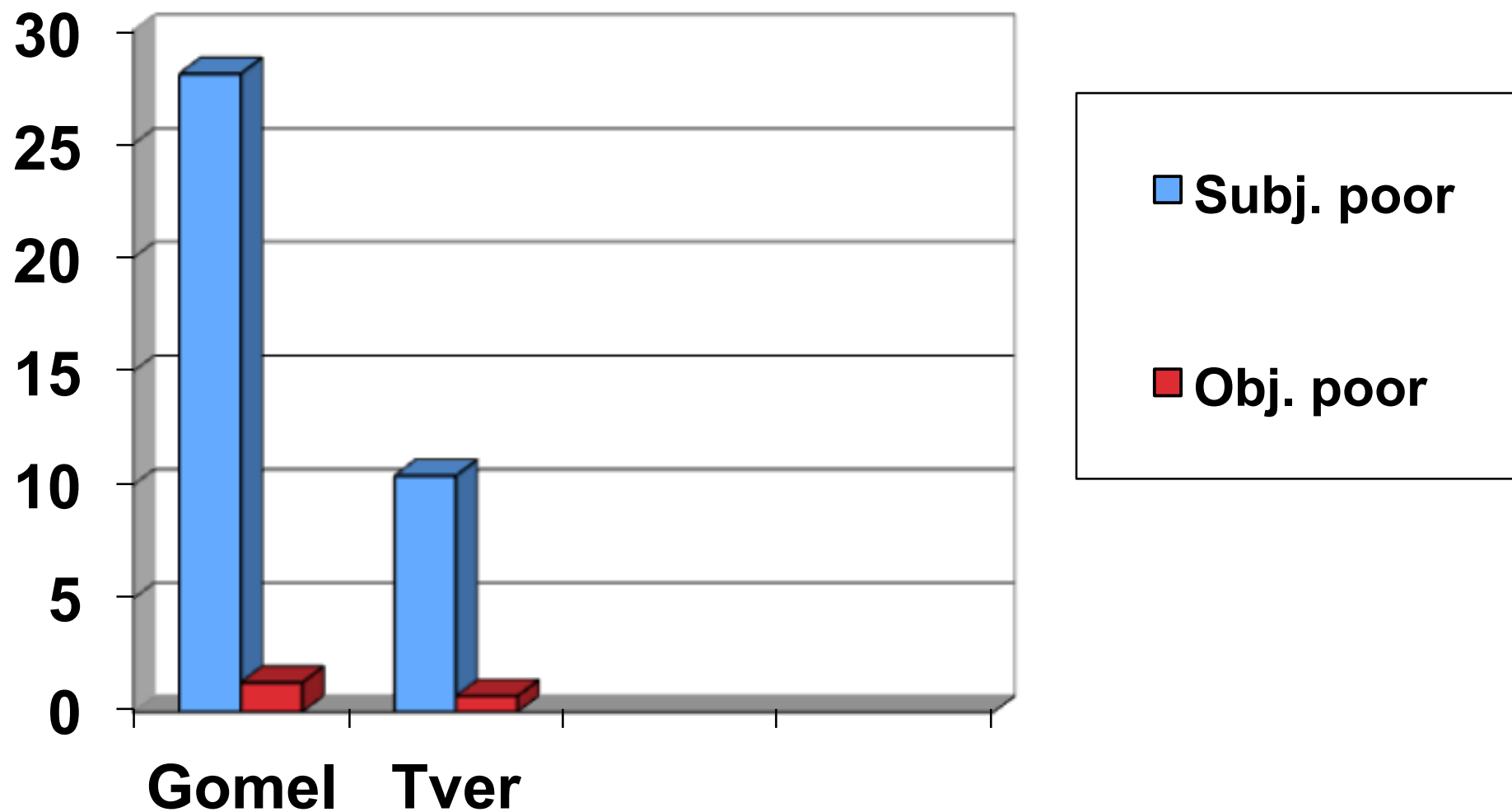
Greenpeace (2006)

- 50% increase in cancer risk in Gomel district (Belarus)
- 3 x more cancer in Bryanks (Russia) and Zhytomir (Ukraine)
- 137.000 thyroid cancers
- Mental retardation in children exposed in utero
- Increased risk of bronchitis, gastric ulcer, immune deficiencies, schizophrenia etc.
- 93.080 extra deaths

Psychological consequences

- More psychological complaints (anxiety and depression) among affected populations, especially mother with young children
- More physical complaints, more days sick-leave
- More depression and ADHD among affected children
- No mental retardation in several good, independent studies, only in poor studies
- More depression, posttraumatic stress and suicidal ideation, and perhaps more suicide among liquidators

Subjective and objective health in Gomel (Belarus) and Tver (Russia)



If an event is believed to be real, it is real in it's consequences

- Consequences of protective measures: abortions, evacuation, dietary advice
- Consequences of stress
- Nocebo effect
- Behavioral change, e.g. alcohol consumption, neglect of protective measures
- Attribution of complaints to the event
- Economical damage
- Influence on decision making (e.g. power stations)

Possible causes of the controversy after Chrnobyl

- Contradictory information from Soviet Union and later FSU states
- Lack of know-how and equipment on the ground
- Lack of epidemiological expertise and infrastructure
- Financial gain from exaggerating problems to receive humanitarian help
- Media hype

Recommendations

- Provide timely and accurate information to the public
- Instruct medical teams and regular health services about the effects of radiation
- Be prepared for other than PTSD mental health effects, especially somatoform disorders, substance abuse, depression, anxiety and perhaps suicide
- Weigh possible effects of radiation against risks associated with long-term evacuation

Cf. www.radiationandreason.com

Discussion