

Use of ionising radiation for medical purposes: what is the risk perception of hospital personnel?

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Perception of ionising radiation risks

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 - Familiarity, voluntary action, disaster potential, controllability,..., influence risks perception
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 - Public considers diagnostic X-rays less risky, and nuclear power and radioactive waste more risky than the technical experts do

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- Difference between lay public and experts' perceptions
 - Public considers diagnostic X-rays less risky, and nuclear power and radioactive waste more risky than the technical experts do
- Higher trust in the institutions responsible for risk governance lowers risk perception

Perception of ionising radiation (IR) risks among professionally exposed

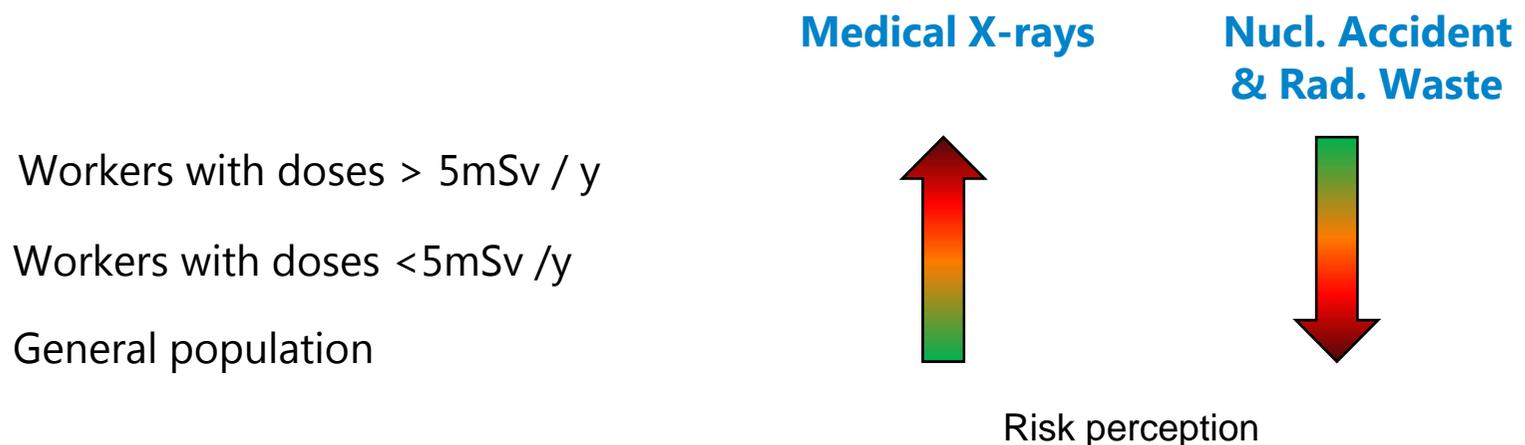
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Perception of ionising radiation (IR) risks among professionally exposed

- Some results from the literature
 - Nuclear power plant employees
 - Perceived **nuclear** risk accounts for one third of the perceived **overall** job risk
 - nuclear risk by far the most important predictor
 - Job satisfaction more strongly related to perceived conventional job risks than to nuclear risks
 - Lower specific knowledge correlated to higher risk perception

Perception of ionising radiation (IR) risks among professionally exposed

- Some results from the literature
 - Nuclear power plant employees
 - Employees of a nuclear research centre (SCK•CEN) professionally exposed to IR
 - Distinction between annual dose lower/higher 5mSv



Perko T. *Journal of environmental radioactivity* (2014)

Perception of ionising radiation (IR) risks among professionally exposed

- Some results from the literature
 - Nuclear power plant employees
 - Employees of a nuclear research centre (SCK•CEN) professionally exposed to IR
 - Hospital personnel
 - Organisational variables (e.g. hierarchy and team membership) influence perception of occupational exposure to low-level IR
 - Small clinics likely to be different than large hospitals

Perception of ionising radiation (IR) risks among professionally exposed

- Some results from the literature
 - Nuclear power plant employees
 - Employees of a nuclear research centre (SCK•CEN) professionally exposed to IR
 - Hospital personnel
- Studies on other types of occupational exposure
 - Lower risk perception correlated to the use of less safe procedures among asbestos workers

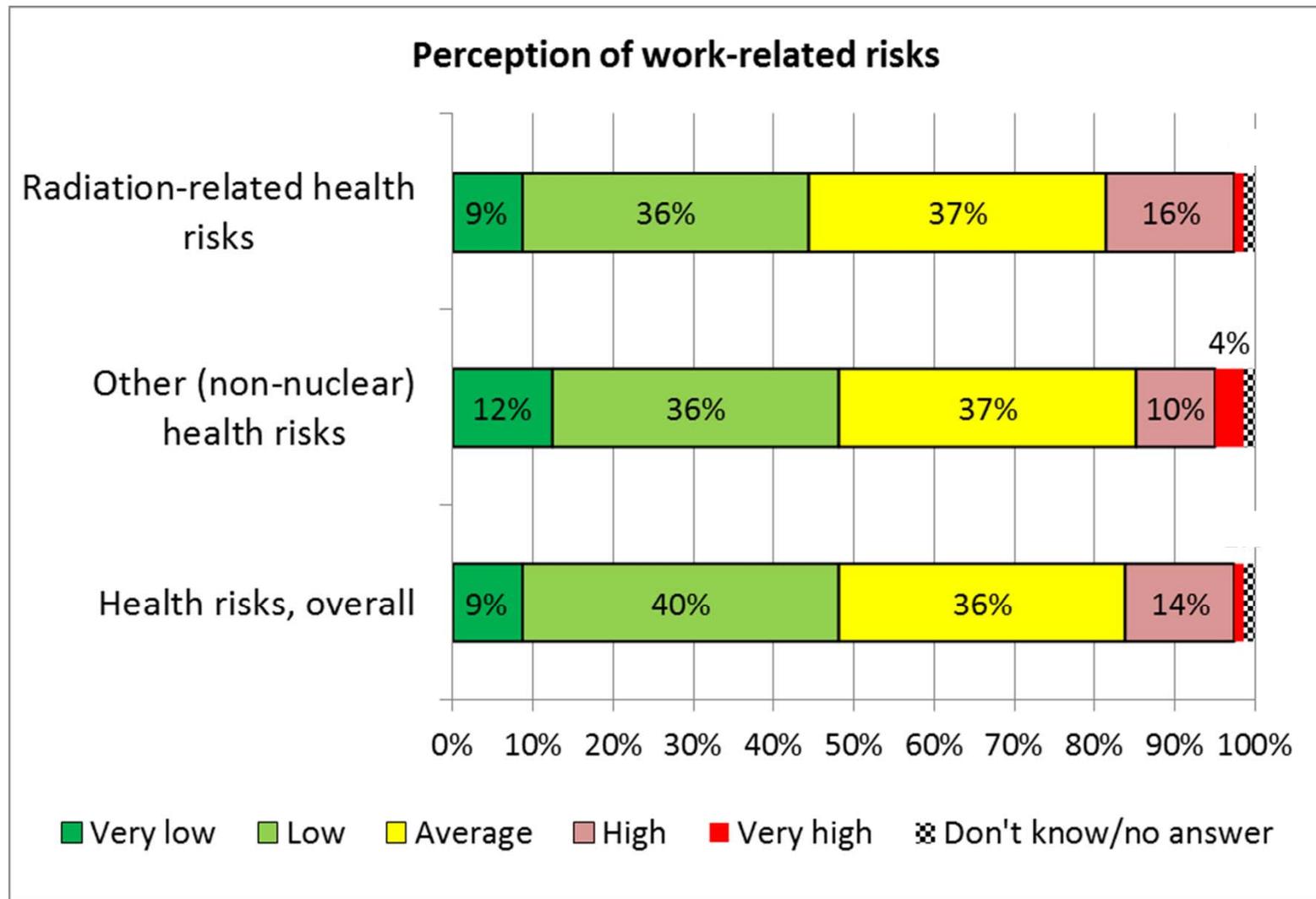
Perception of IR among hospital personnel in a number of Belgian hospitals

- Methodology
 - Dedicated questionnaire, containing, among other,
 - Socio-demographic variables, working environment, risk perception, (claimed) safety behaviour
 - Items: stated as questions; answering categories: 5-point Likert scale
 - Printed version distributed in **five Belgian hospitals** among hospital personnel exposed to IR
 - Voluntary and anonymous
 - Data used for the comparisons with the general population: from a large scale opinion survey in Belgium (SCK•CEN's 2011 Barometer)

The sample

- 81 respondents
 - Radiology (55), radiotherapy (15), nuclear medicine (13), emergencies (1)
 - Profession: nurse (36), technician (21), doctor (22), other (2)
 - 48% men vs. 52% women
 - 43% of respondents working with IR for less than 10 years

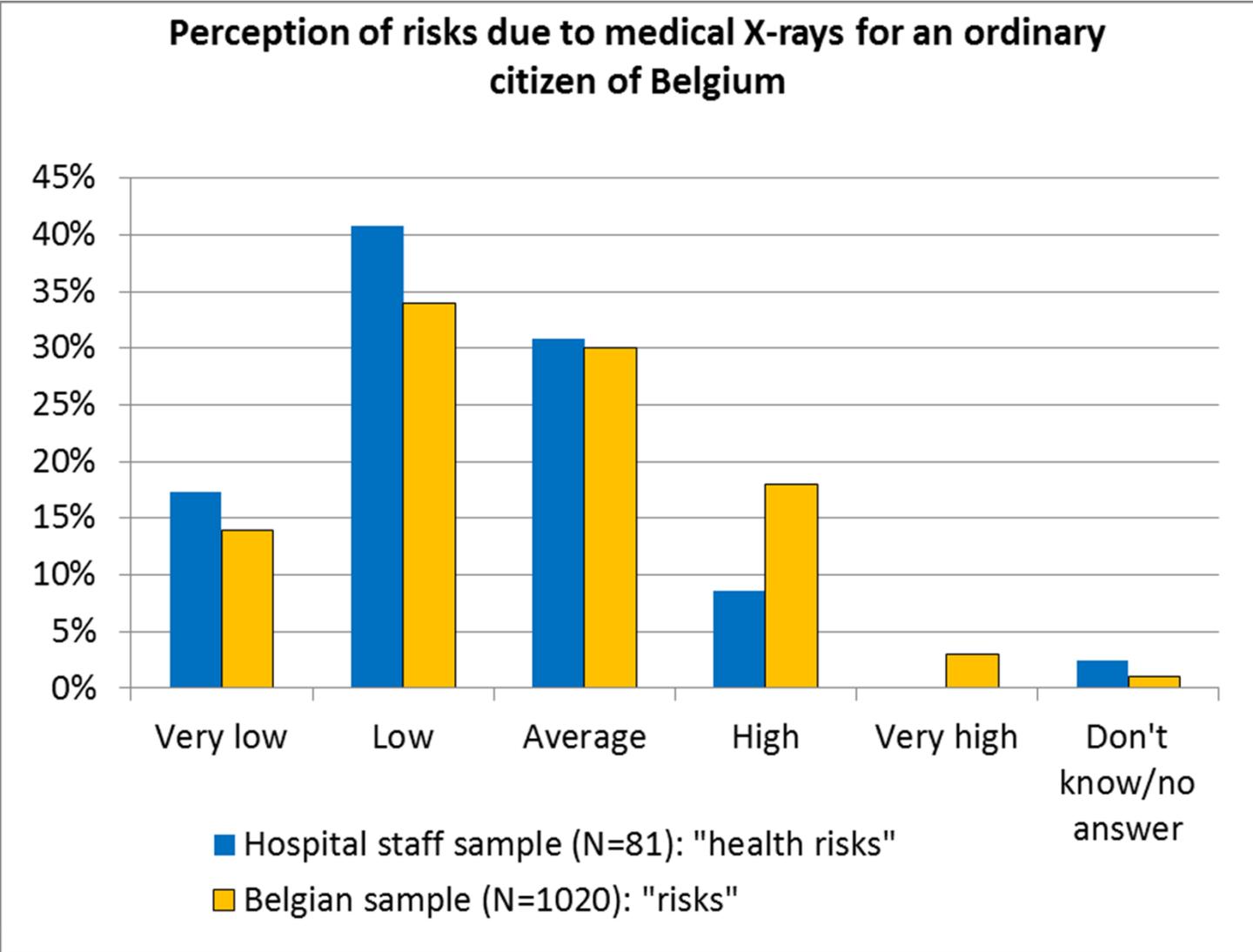
Perception of health risks at work



Perception of health risks at work (ctd)

- Perceived **general risk** correlated with both **perceived IR** and **non-IR risks**
 - Perceived **IR risk**, perceived **non-IR risk** and **stress at work** explain <50% of the perceived general risk
 - Perceived IR risk alone can explain 32% of the variance
 - Perceived non-IR risk almost as important as perceived IR risk
 - Socio-demographic variables were not significant predictors
- **General satisfaction** with the working environment negatively correlated with **perception of overall risk**, but **not** with perceived IR risk
- Similarly, **higher perceived stress** associated with **higher** perceived **overall** risk and **non-IR** risk, but **not** with perceived IR risk

Perceived risk of medical X-rays for an ordinary citizen in Belgium



Safety behaviour

- Lower perceived work risks (general, nuclear and non-nuclear) associated with more frequent use of collective or individual protective equipment
 - Possible interpretation of our results:

safer behaviour with respect to IR work risks



increased feeling of safety and controllability



lower risk perception

Conclusions

- A varied sample of medical staff exposed to IR was analysed
- Stress in the hospital environment is a reality; however it seems to have other causes than perceived IR risk
- Perception of IR risk represents a third of the overall perceived job risk, but the non-IR risks are almost equally important
- Knowledge of respondents' real exposure to IR and real vs. claimed safety behaviour would bring valuable insights
- The study should be reproduced in smaller structures

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