

Risk Perception and Communication following an exposure event at a wood treatment plant:

A before and after study

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Introduction

- New high heat timber kiln
- No chemical preservatives
 - Ecological/Workplace benefits?
- Products of incomplete combustion



Background

- Three short term exposures (hours)
- Anecdotal health issues – Skin, URT, Headache

- 18 months later: Our invitation
 - Assess and communicate risks
 - High level of worker health concern
 - In-house risk communication not effective

Cicognani, E., & Zani, B. (2015). Communication of health risks from exposure to depleted uranium (DU) in Italy: a case study. *Journal of Risk Research*, 18(6), 771-788. doi: 10.1080/13669877.2014.913657

Research Hypothesis

- Risk communication will improve understanding of risks, and attenuate concern levels

Risk communication gone astray..



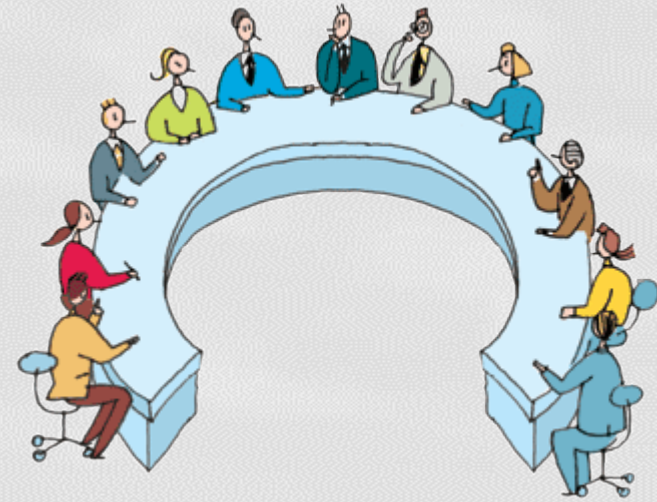
Methodology

- Before and after study
 - Intervention is Risk communication
- Participants:
 - 113 volunteers (of 197 total population)
 - Written consent - purpose of study
- Initial: Medical interview/assessment
 - Rapport, Listening*
 - then deliver questionnaire

*Seeger, M. W. (2006). Best Practices in Crisis Communication: An Expert Panel Process. *Journal of Applied Communication Research*, 34(3), 232-244.

Intervention

- Report Delivery
- Written information
- Video presentation



Population

Male	96%
Female	4%
Age >40years	65%
NZ European	79%
NZ Maori	16%
Ethnicity Other	5%

Demographics of
Participants (Total 113)

Questionnaire

- Delivered before and after risk communication intervention
 - 1. Have they received information?
 - 2. Has it allowed them to understand the risks?
 - 3. At the time of exposure were they concerned about the health effects?
 - 4. Are they concerned about the health effects now?

Questionnaire

1. I have received information about the potential health effects from exposure to TMT kiln emissions:

Strongly Disagree Disagree Neutral Agree Strongly agree

2. The information provided to me has allowed me to understand risks to my health:

Strongly Disagree Disagree Neutral Agree Strongly agree

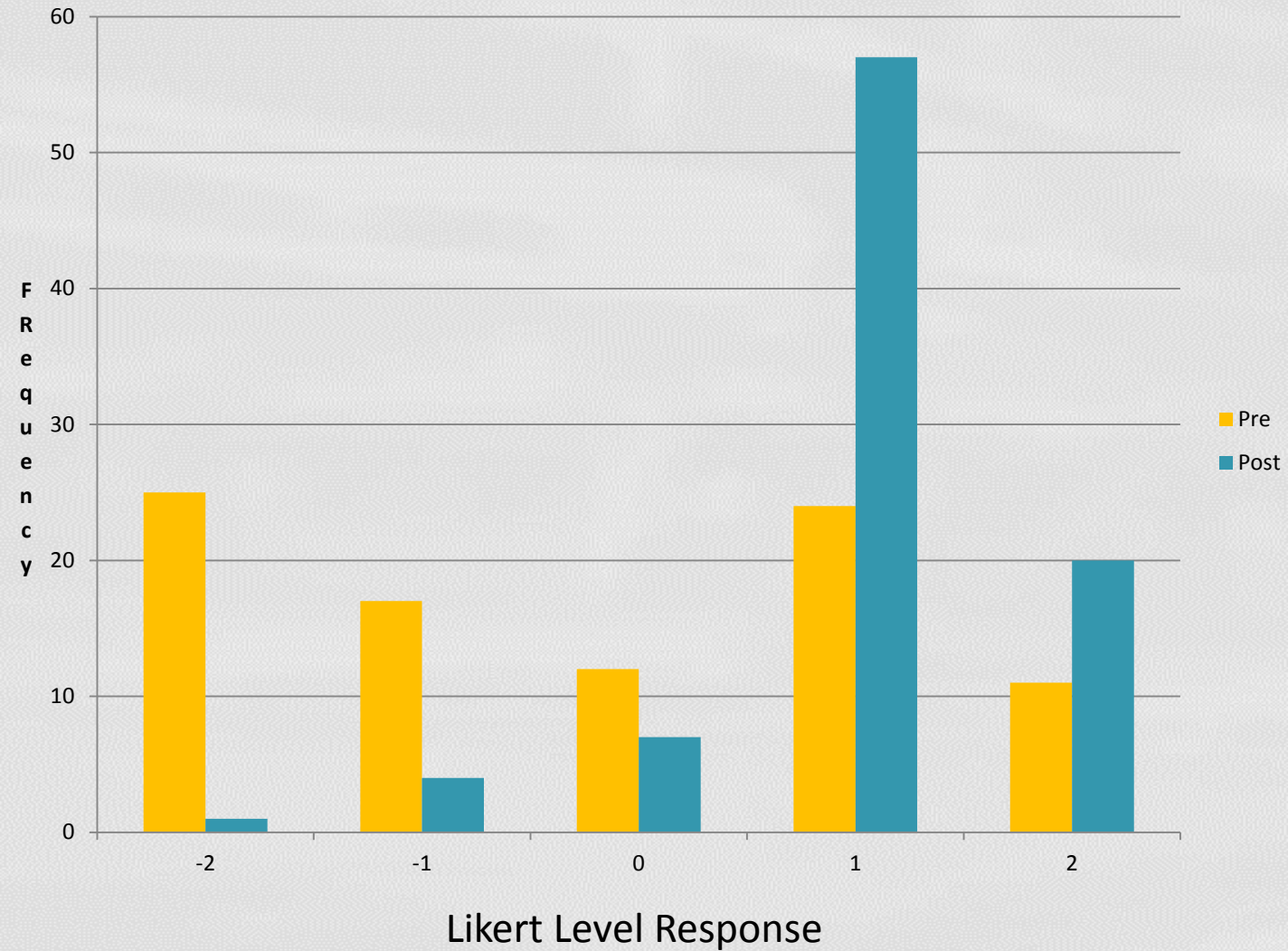
3. At the time of TMT kiln emissions I had concerns for my health because of exposures:

Strongly Disagree Disagree Neutral Agree Strongly agree

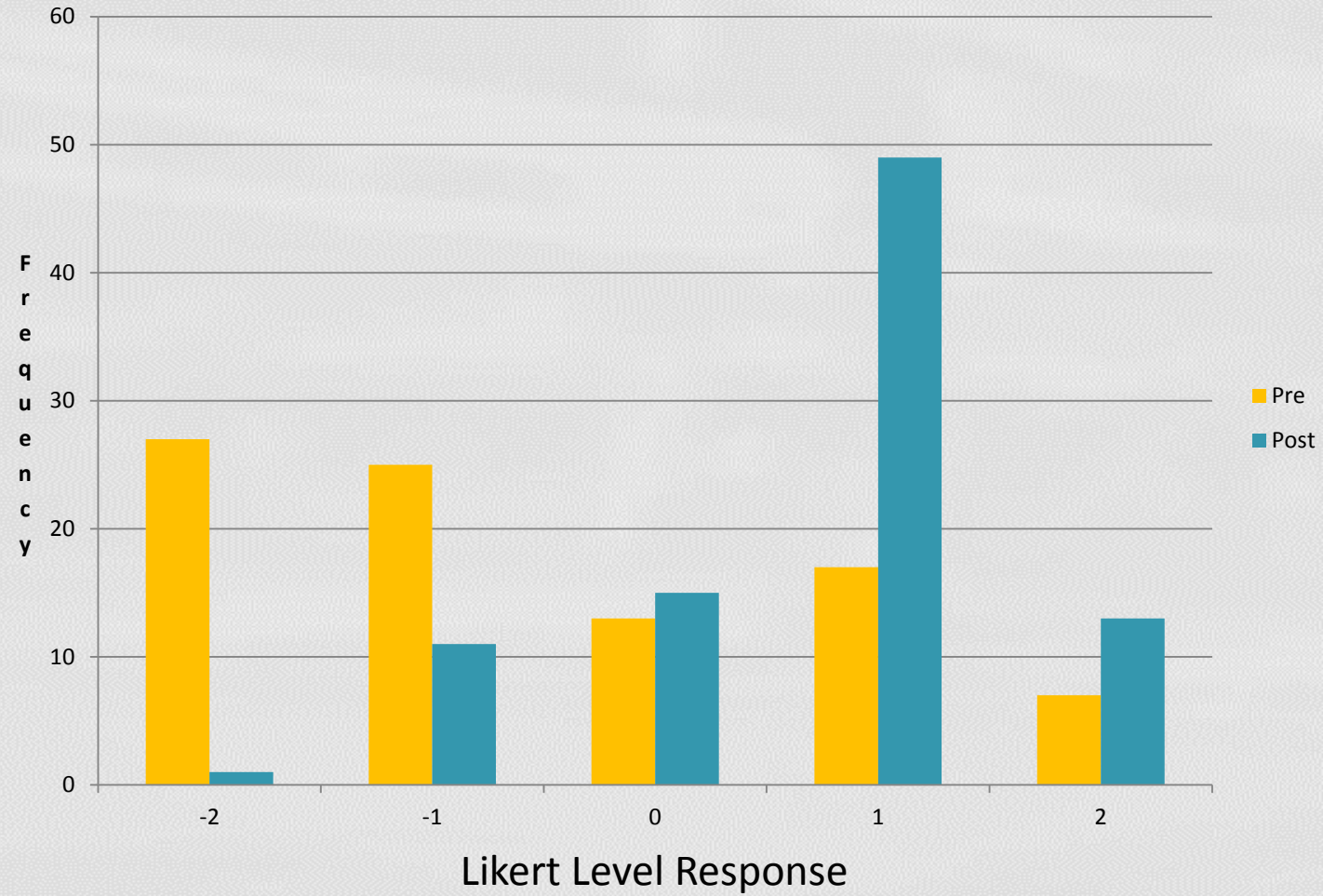
4. Currently I have concerns for my health because of past exposures to TMT kiln emissions:

Strongly Disagree Disagree Neutral Agree Strongly agree

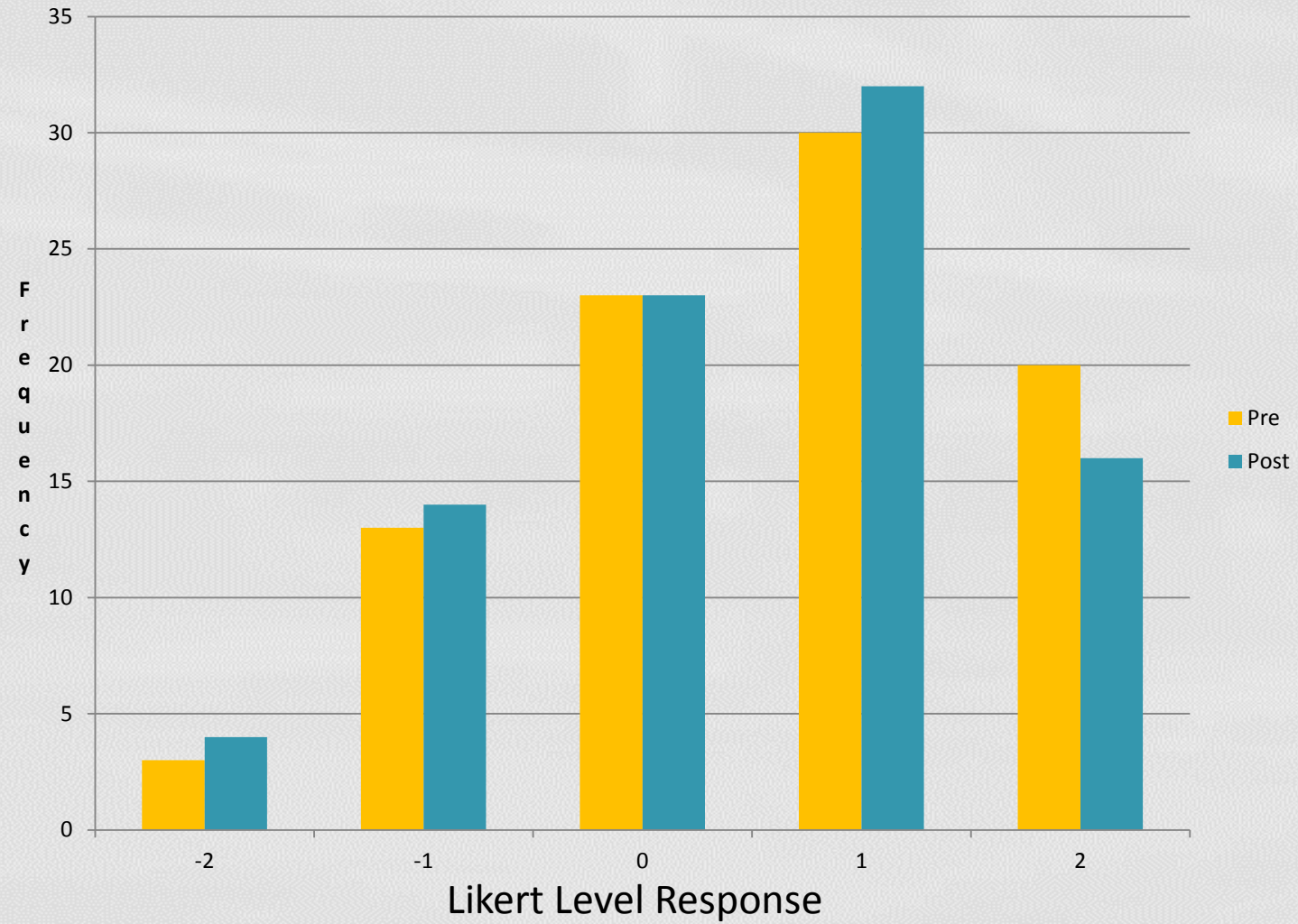
Q1. Received information re: health effects?



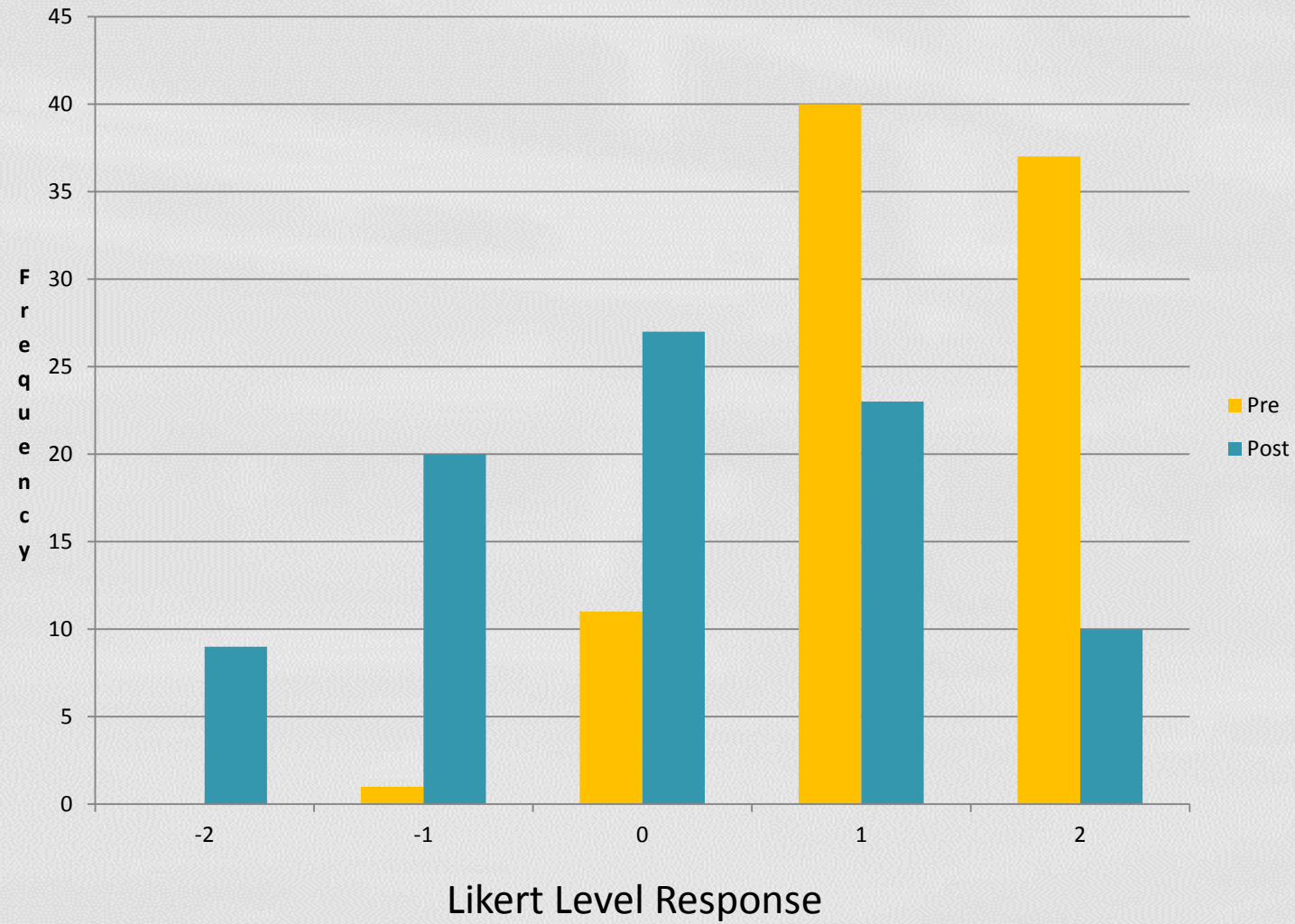
Q2. Information Allowed Understanding of risks?



Q3. Health concerns at time of exposures?



Q4. Current health concerns re: exposures?



Results – Paired t-tests

	Mean change	Lower CI (95%)	Upper CI (95%)	P-Value
Q1	1.26	0.94	1.58	<0.001
Q2	1.24	0.93	1.54	<0.001
Q3	-0.1	0.01	-0.21	0.072
Q4	-1.21	-0.95	-1.48	<0.001

Students Paired T-tests of before and after statement responses

Analysis

- Chance (p-values)
- Bias – Ethnicity 5/6 loss to follow up
- Systematic bias?
 - Our Interaction, medical assessment
 - ? Pressure from company -> Response – desirable?
- Confounding – Time since exposure/symptoms

Strengths and Limitations

- Limitations:

- Before and After Study
- ↓ Generalisability

- Strengths:

- High Retention rate - 79% response
- Question 3 consistency of response
 - Response validation for Q1,2 and 4?

Clinical Relevance

- Occupational Physicians
- Risk communication

- Initial rapport, independence and trust* established – Improves risk communication and perception



*López-Navarro, M. Á., Llorens-Monzonís, J., & Tortosa-Edo, V. (2013). The Effect of Social Trust on Citizens' Health Risk Perception in the Context of a Petrochemical Industrial Complex. *International Journal of Environmental Research and Public Health*, 10(1), 399-416.

*Hambach, R., Mairiaux, P., François, G., Braeckman, L., Balsat, A., Van Hal, G., . . . van Sprundel, M. (2011). Workers Perception of Chemical Risks: A Focus Group Study. *Risk Analysis*, 31(2), 335-342.

Future

- Further work:
 - Risk communication effects!
 - Benefit to health of workers, trust relationship
 - Psychological wellbeing
- Comparison group
- (Feed back to the company – policy/planning)

Thank you

GOOD RISK COMMUNICATION:

AS CAPTAIN OF THIS FLIGHT, I DEEPLY REGRET HAVING TO INFORM YOU THAT WE ARE ABOUT TO CRASH.



CARTOON BY MICHAEL MITTAG, WWW.COOLRISK.COM