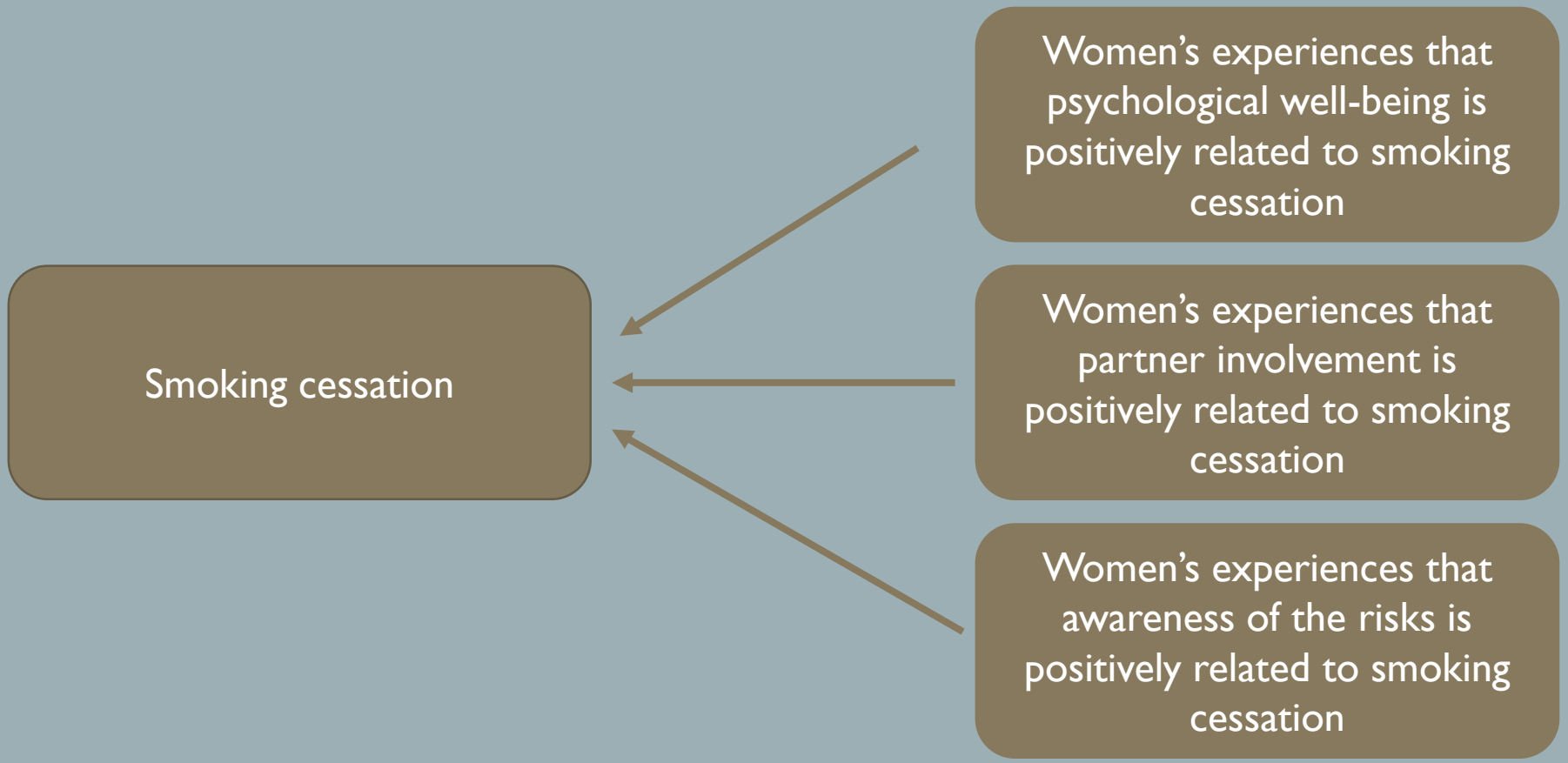
INTEGRATING FINDINGS FROM QUALITATIVE STUDIES IN A BAYESIAN META-ANALYSIS

Dr. Leonie van Grootel, september 2018 – Cochrane colloquium

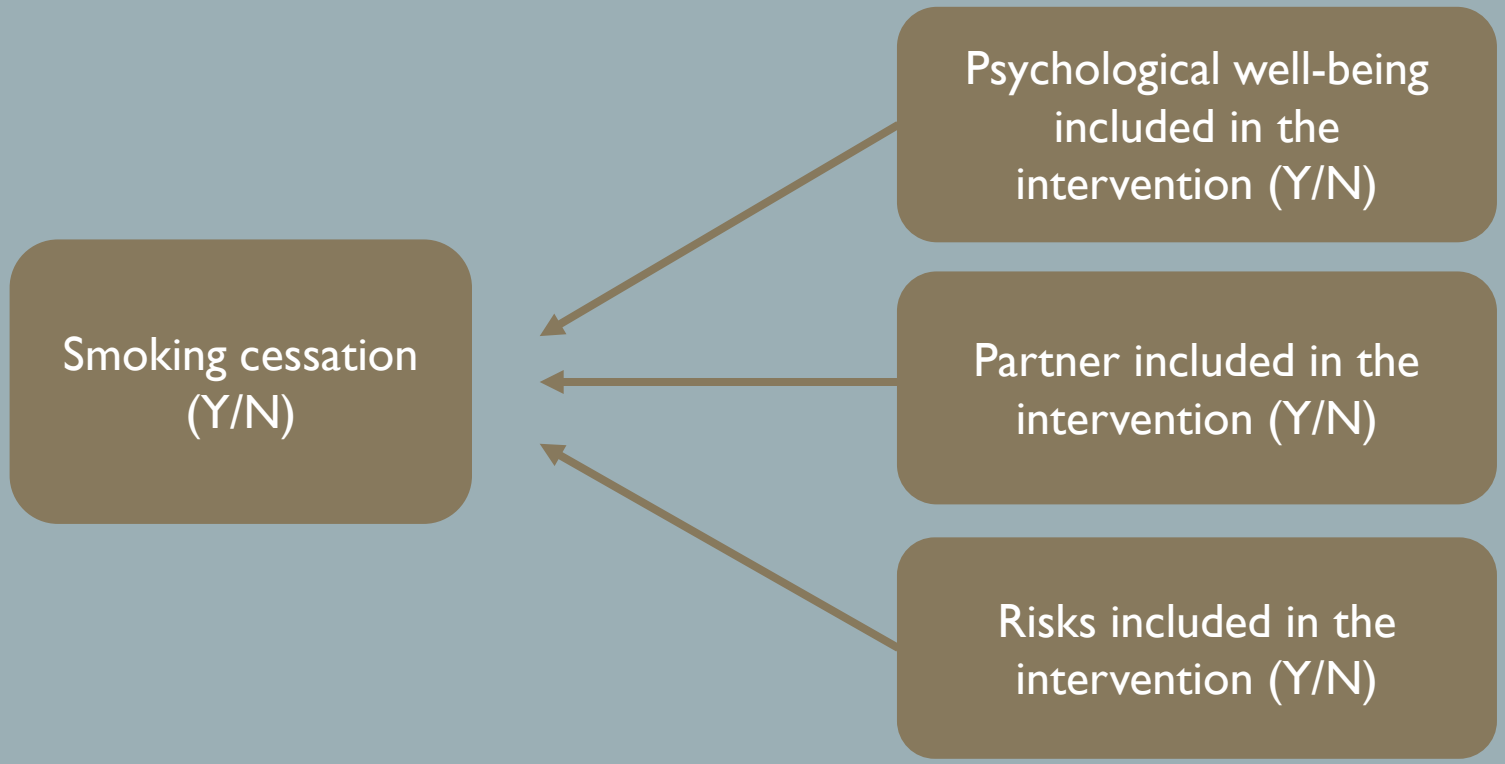
INTRODUCTION

- Starting point
  - A quantitative and a qualitative review on *Smoking cessation during pregnancy*
  - Qualitative evidence already quantified
  - Both discuss reasons for smoking cessation
- Assumptions
  - Comparability work in reviews
  - Qualitative evidence holds ‘causal’ information
- Aim of the research
  - Decribing a worked example and exploring the possibilities and limitations of this type of mixed studies review

STEP 1: MODELING QUAL DATA



STEP 2: MODELING QUAN DATA



STEP 3: MATCHING REASONS TO PREDICTORS

Reasons from qualitative dataset	Predictors from quantitative dataset
Psychological well-being	Smoking as a coping mechanism for psychological (un)well-being
Relationship with significant others	Active involvement of a peer in intervention
Perceptions of risk	Beliefs about the risks associated with smoking The impact of personal experience on the perception of risk associated with smoking

STEP 4: MATCHING THE AVAILABLE DATA

Frequentist meta-analysis not possible

Relation in quantitative dataset

X = Effort to address psychological well-being in the intervention

Y = Effect of the intervention, effect size

Relation in qualitative dataset

X = Psychological well-being

Y = Smoking cessation

STEP 5: SPECIFYING THE PRIOR

Correlations

Reason	Mean	Standard deviation
Psychological well-being	.2246	.0352
Relationship with significant others	.2410	.0351
Perception of risks	.1707	.0472

Inv. Variance adjusted for sample size

Bayesian meta-analysis with an informative prior

STEP 6: DISPLAYING THE POSTERIOR

Predictor	Prior distribution	Posterior mean for β	Standard deviation	95% CI lower limit	95% CI upper limit
Psychological well-being	Uninformative	-.284	.153	-.559	.035
	Informative	.130	.073	-.016	.272
Relationship with significant others	Uninformative	.129	.168	-.248	.440
	Informative	.222	.074	.076	.367
Perceptions of risks	Uninformative	.105	.165	-.222	.420
	Informative	.151	.093	-.031	.335

DISCUSSION

Similar enough for integration?!