

# Pregnancy, a teachable moment?

An evaluation of the project *Rondom de Zwangere*

Major internship Epidemiology

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## Theoretically: Pregnancy, a teachable moment

1. Increased perception of personal risk and outcome expectancies
2. Strong affective or emotional response
3. Redefined self-concept or social role

## Introduction - *Rondom de Zwangere*

Extra attention

Short lines to other caregivers

- GP
- Dietician
- Cesar-therapist
- Stress-counsellor
- Lactation-expert



## Introduction - *Random de Zwangere*

- Underweight (BMI <18,5 kg/m<sup>2</sup>)
- Overweight (BMI >27,0 kg/m<sup>2</sup>)
- Excessive or minimal weight gain
- (suspicion of) **gestational diabetes mellitus**
  - Current pregnancy
  - Previous pregnancy
- Macrosomia in previous pregnancy

## Introduction - The accompanying problems

- Gestational hypertension
- Caesarean section
- Lower Apgar-score
- High birth weight
- Hypoglycaemia
- Obesity in future generations

## Methods - Study population

Midwifery practice Tiel

Midwifery practice Culemborg (reference group)

First counsel between 1-1-2010 – 30-6-2011

### 3 analyses

1. Non-participants vs. participants Tiel
2. Subgroup participants vs. Subgroups Culemborg
3. Qualitative research

## Methods - Outcomes of interest

1. Mode of delivery
2. Birth weight
3. Hypoglycaemia
4. Apgar-score after 5 minutes
5. Feeding at day seven
  
6. Gestational Diabetes Mellitus (GDM)



## Methods - Analysis

Simple analyses:

- Linear regression p-value
- Crosstabs p-value and ORs 95% CI

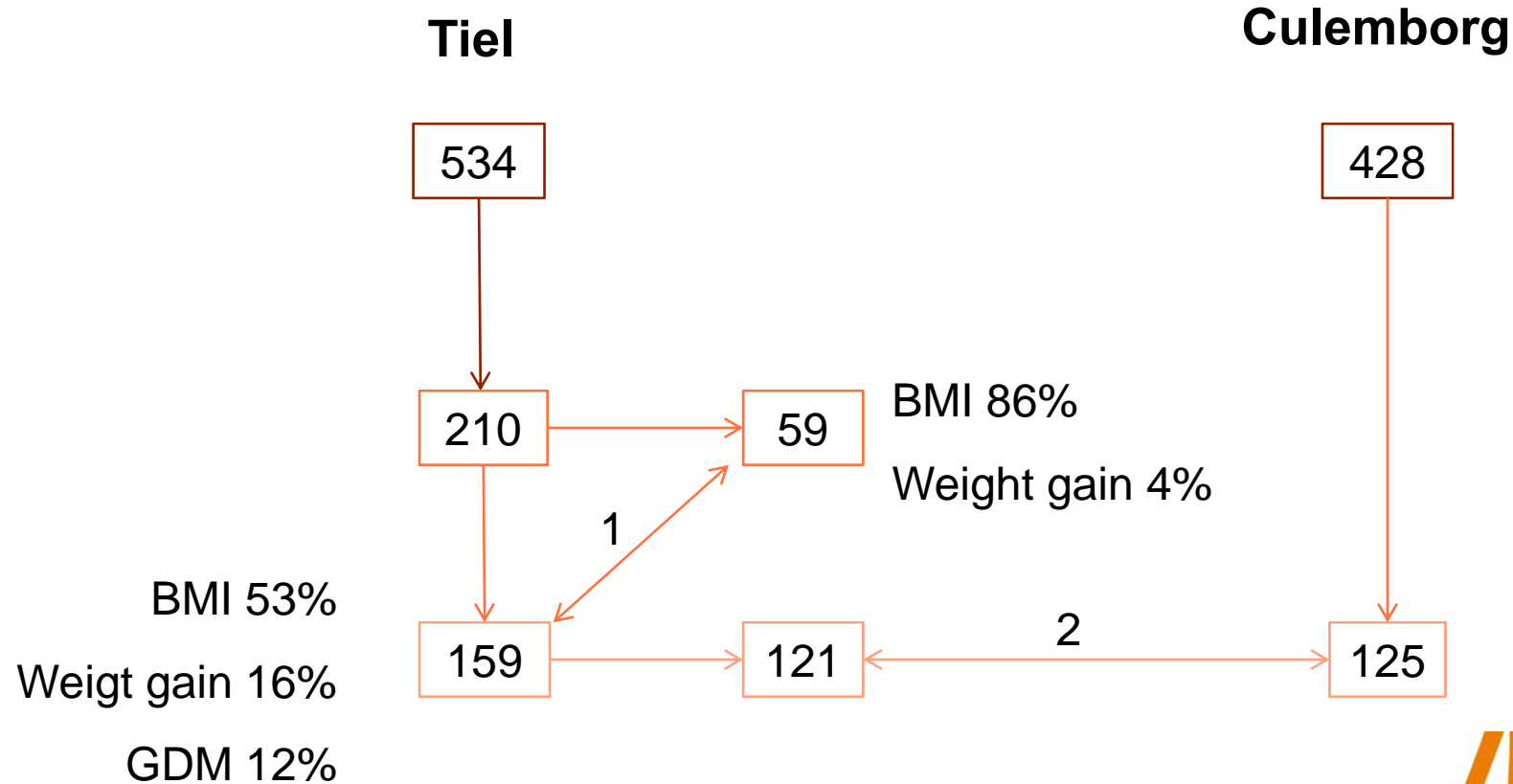
Correction for multiple confounders

- Linear regression
- Logistic regression

Survey: frequency tables



## Results - Counts



## Results - First analyses

	Tiel Participants N=159 (%)		Tiel Non-participants N=51 (%)		p-value
<b>Age in years</b>					
- Mean (min-max)	30.0	19 - 42	30.2	19 - 41	P: 0.82
<b>Ethnicity</b>					
- Dutch	114	(73)	39	(78)	P: 0.81
- Mediterranean	23	(15)	6	(12)	
<b>BMI in kg/m<sup>2</sup></b>					
- Mean (min-max)	29.5	12.9 - 46.7	30.4	24.1 - 39.1	P: 0.13
- BMI ≥ 27.0 kg/m <sup>2</sup>	104	(65)	48	(94)	P: 0.00*
<b>Parity</b>					
- Mean (min-max)	1.8	1-8	2.4	1-7	P: 0.02*
<b>Smoking during pregnancy</b>					
- Yes	43	(33)	13	(36)	P: 0.84
<b>Gestational diabetes mellitus</b>					
- Yes	40	(25)	4	(8)	P: 0.01*
<b>Weight gain in kg</b>					
- Mean (min-max)	10.3	-6.5 - 32.4	8.3	-3.9 - 22.1	P: 0.04*

## Results - First analyses

	Tiel Participants N=159# (%)		Tiel Non-participants N=51# (%)		Crude OR (95%CI)
<b>Mode of delivery</b>					
- Caesarean section	32	(21)	15	(30)	0.61 (0.30-1.25)
<b>Birth weight</b>					
- Mean (min-max)	3475	1085-4790	3451	1100-4910	P: 0.83
- > 4000 gram	24	(16)	6	(14)	1.18 (0.45-3.11)
<b>Hypoglycaemia in offspring</b>					
- Yes	8	(5)	5	(10)	0.32 (0.06-1.70)
<b>Apgar after 5 minutes</b>					
- Mean (min-max)	9.7	2-10	9.8	8-10	P: 0.21
<b>Feeding at day 7</b>					
- Breast	100	(66)	26	(55)	1.55 (0.80-3.02)

## Results - First analyses

	Tiel Participants N=159# (%)		Tiel Non-participants N=51# (%)		Crude OR (95%CI)	Adjusted OR (95%CI)
<b>Mode of delivery</b> - Caesarean section	32	(21)	15	(30)	0.61 (0.30-1.25)	0.72 (0.26-1.97) <sup>b,e,g,h</sup>
<b>Birth weight</b> - Mean (min-max)	3475	1085-4790	3451	1100-4910	P: 0.83	P: 0.89 <sup>c,e,g,k</sup>
- > 4000 gram	24	(16)	6	(14)	1.18 (0.45-3.11)	1.08 (0.33-3.55) <sup>e,f</sup>
<b>Hypoglycaemia in offspring</b> - Yes	8	(5)	5	(10)	0.32 (0.06-1.70)	0.16 (0.03-0.82) <sup>b,e,f,g,i</sup>
<b>Apgar after 5 minutes</b> - Mean (min-max)	9.7	2-10	9.8	8-10	P: 0.21	P: 0.18 <sup>j,l</sup>
<b>Feeding at day 7</b> - Breast	100	(66)	26	(55)	1.55 (0.80-3.02)	1.65 (0.82-3.30) <sup>a,d</sup>

Used confounders

a: Age of the mother      c: BMI continue      e: Smoking behaviour      g: Duration of the pregnancy      i: Birth weight continue      k: Hypoglycaemia  
 b: Ethnicity Mediterranean      d: Parity      f: GDM      h: Birth weight >4000 gram      j: Problems      l: Mode of delivery

# size of the groups differed between variables

## Results - Second analyses

	Tiel Participants N=121 (%)		Culemborg Non-participants N=125 (%)		p-value
<b>Age in years</b>					
- Mean (min-max)	30.7	19 - 42	31.5	19 - 43	P: 0.22
<b>Ethnicity</b>					
- Dutch	84	(70)	98	(78)	P: 0.20
- Mediterranean	21	(18)	22	(18)	
- Other	14	(12)	5	(4)	
<b>BMI in kg/m<sup>2</sup></b>					
- Mean (min-max)	31.2	20.2 - 46.7	29.9	19.8 - 46.9	P: 0.03*
- BMI ≥ 27.0 kg/m <sup>2</sup>	104	(86)	107	(86)	P: 1.00
<b>Parity</b>					
- Mean (min-max)	1.96	1-8	2.17	1 - 8	P: 0.15
<b>Smoking during pregnancy</b>					
- Yes	30	(31)	10	(8)	P: 0.00*
<b>Weight gain in kg</b>					
- Mean (min-max)	8.5	-6.2 - 32.1	14.0	2.8 - 30.0	P: 0.00*

## Results - Second analyses

	Tiel Participants N=121 (%)		Culemborg Non-participants N=125 (%)		Crude OR (95%CI)
<b>Mode of delivery</b>					
- Caesarean section	24	(20)	30	(24)	0.81 (0.44-1.49)
<b>Birth weight</b>					
- Mean (min-max)	3509	1085 - 4692	3512	866 - 4536	P: 0.96
- >4000 gram	21	(19)	23	(18)	1.00 (0.53-1.97)
<b>Hypoglycaemia in offspring</b>					
- Yes	7	(6)	0	(0)	To small numbers for analyses
<b>Apgar after 5 minutes</b>					
- Mean (min-max)	9.7	2-10	9.7	5 - 10	P: 0.81
<b>Gestational diabetes mellitus</b>					
- Yes	40	(33)	30	(24)	1.56 (0.90-2.73)
<b>Feeding at day 7</b>					
- Breast	76	(66)	92	(74)	0.66 (0.38-1.15)

## Results - Second analyses

	Tiel Participants N=121 (%)		Culemborg Non-participants N=125 (%)		Crude OR (95%CI)	Adjusted OR (95%CI)
<b>Mode of delivery</b>						
- Caesarean section	24	(20)	30	(24)	0.81 (0.44-1.49)	0.61 (0.29-1.7) <sup>b,d,f</sup>
<b>Birth weight</b>						
- Mean (min-max)	3509	1085 - 4692	3512	866 - 4536	P: 0.96	P: 0.38 <sup>d,h</sup>
- >4000 gram	21	(19)	23	(18)	1.00 (0.53-1.97)	1.27 (0.61-2.63) <sup>d,h</sup>
<b>Hypoglycaemia in offspring</b>					To small numbers for analyses	
- Yes	7	(6)	0	(0)		
<b>Apgar after 5 minutes</b>						
- Mean (min-max)	9.7	2-10	9.7	5 - 10	P: 0.81	P: 0.61 <sup>a,g</sup>
<b>Gestational diabetes mellitus</b>						
- Yes	40	(33)	30	(24)	1.56 (0.90-2.73)	1.84 (1.00-3.36) <sup>b,c</sup>
<b>Feeding at day 7</b>						
- Breast	76	(66)	92	(74)	0.66 (0.38-1.15)	0.74 (0.39-1.42) <sup>b,c,d,e</sup>

Used confounder

a: Age of the mother

c: BMI continues

e: Mode of delivery

g: Problems with the baby

b: Ethnicity Dutch

d: Smoking behaviour

f: Birth weight >4000 gram

h: Hypoglycaemia

# Size of the groups differed between variables

## Results - Experience of the approach

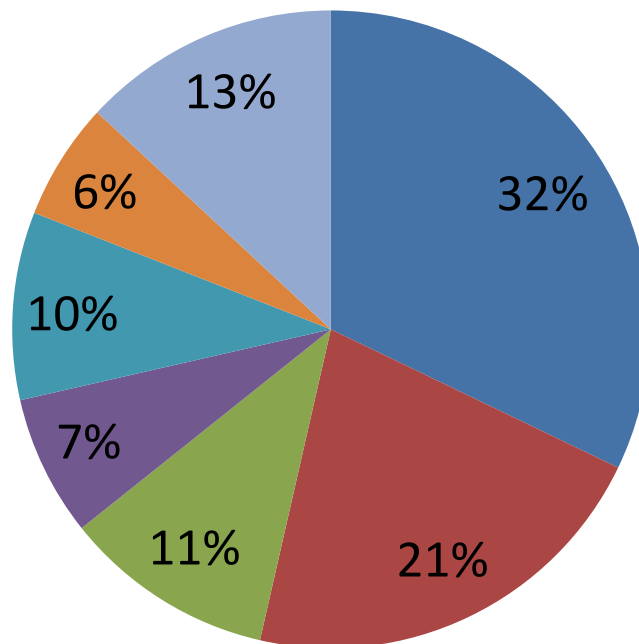
- Response rate 44/155 = 28%
- 57% more aware of health
- Support from caregiver

Caregiver	N=44	Agree	Neutral	Not agree	Not applicable
- Midwife	43	42	1	.	.
- Dietician	42	22	10	10	.
- Caesar therapist	17	16	1	.	21
- Lactation expert	5	4	1	.	31
- Stress counsellor	2	1	.	1	34



## Results - Experience of the approach

### Learning points



- Healthy food during pregnancy
- The importance of healthy food during pregnancy
- Healthy food after pregnancy
- The importance of movement during pregnancy
- The importance of breast feeding
- How to deal with stress
- Healthy lifestyle

## Discussion - Limitations

Use of existing database

- Midwifery registration

Differences in registration

- Practice policy
- Individual methods



## Discussion - First analyses

GDM in participants group

- Compulsory
- More often tested

Weight gain participants

- BMI prior pregnancy
- Smoking behaviour

## Discussion - Second analyses

Culemborg as control group

- Social economic status (SES)

GDM and hypoglycaemia,

- Incidence of detection rate?

## Discussion - Experience of the approach

Overestimation of healthy behaviour

Negative judgement of the dietician

- Event two years ago
- Educative role

## Conclusion

Moderate improvement in detection

- Gestational diabetes mellitus by the mother
- Hypoglycaemia in the offspring

Beneficial effects in terms of health knowledge en consciousness