

## KMI OG KEISERSNITT HOS MIGRANTKVINNER I NORGE

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### Open Access Article

## Association between Maternal Origin, Pre-Pregnancy Body Mass Index and Caesarean Section: A Nation-Wide Registry Study

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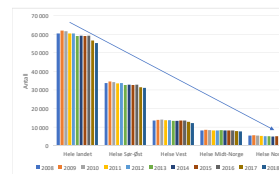
## Dagens Fødepopulasjon

• 2008 – 2018

- Medisinsk fødselsregister
- Nasjonalt pasientregister



## Fødsler i Norge i perioden 2008-2018



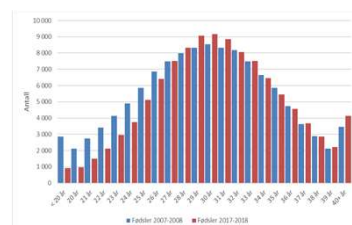
- 2008: 60 371 fødsler
- 2018: 55 070 fødsler
- 2021: ?
- Helse Nord: 14.7% ↓
- Helse Vest: 9.5% ↓
- Helse Sør-Øst: 7.9% ↓

Antall fødsler i Norge og regioner 2008-2018 (≥22 uker, ≥500 g)



Mors alder  
Kroppsmasseindeks  
Mor født utenfor Norge

## Mors alder



Mors alder

Kroppsmasseindeks

Mor født utenfor Norge

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### Kroppsmasseindeks før svangerskapet

KMI > 30: 11.7% -----> 12.7%

KMI > 40: 1.1%

Normal KMI: 61.6% -----> 60.8%

KMI < 18.5: 3.9% -----> 3.8%

NBI Data for KMI er ufullstendig (elektronisk melding).

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### Mor født utenfor Norge

Andel fødsler av utenlandskfødte kvinner i Norge 2008-18

Andel fødsler av utenlandskfødte kvinner etter helseregion

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### Keisersnitt

- Norge
  - 1967: 1.8%
  - 2017: 16.0%
- USA
  - 1989: 22.8%
  - 2016: 31.9%
- WHO
  - 10-15%

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### Keisersnitt blant migrantkvinner

- Både høyere og lavere forekomst av keisersnitt
- Akutt keisersnitt
  - Latin-Amerika & Karibien
- Planlagt keisersnitt
  - ?

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## KMI, migrantstatus og keisersnitt

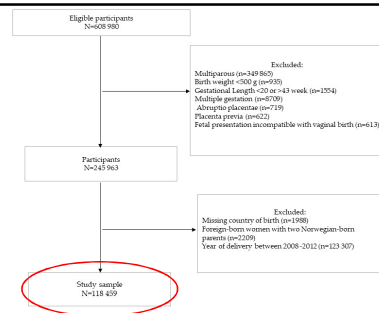
- Økt forekomst av overvekt og fedme hos kvinner i reprodutiv alder
  - Gravide migrantkvinner vs. ikke-migrantkvinner
- Høy KMI hos mor øker risikoen for keisersnitt
  - Akutt keisersnitt
- Høyere forekomst av alvorlige komplikasjoner hos kvinner med høy KMI vs. lav BMI

## Hvordan påvirker mors landbakgrunn og pregravid KMI risikoen for akutt og planlagt keisersnitt?

- Og endrer denne risikoen seg med lengre botid?

## Metode

- 2013-2017
- N=118 459 førstegangsfødende
- Registerbasert kohort
- Landsdekkende
- Medisinsk fødselsregister
- Folkeregisteret
- Utdanningsregisteret



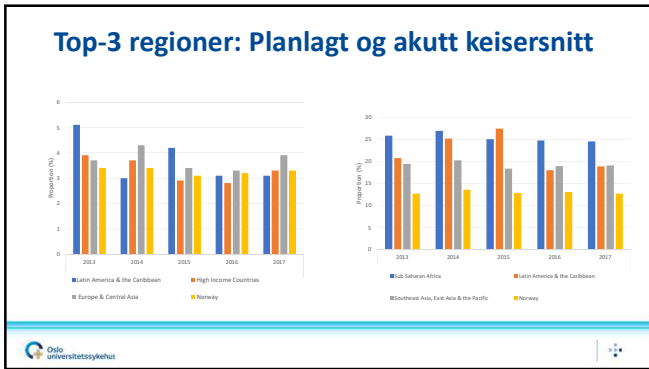
## Begreper

- Utenlandsfødte: en eller to utenlandskfødte foreldre
- Norskfødte: to, en eller ingen norskfødte foreldre
- Global burden of disease framework (GBD)

Norway
High-income countries
Europe & Central Asia
Sub-Saharan Africa
North Africa & the Middle East
South Asia
Southeast Asia, East Asia & the Pacific
Latin America & the Caribbean

## Resultater

- N=118 495
- Akutt keisersnitt: 13.8%
- Planlagt keisersnitt: 3.2%
- Mors alder ( $\geq 35$  år), pre-gravid KMI, utdanning, helse regioner og fars fødested



### Planlagt keisersnitt

Maternal Region of Origin	Cases n (%)	Underweight (BMI < 18.5) n = 143 (3.2%)		Normal (BMI 18.5-24.9) n = 1744 (2.9%)		Overweight/obese (BMI ≥25.0) n = 939 (3.4%)	
		RRR (95% CI)		RRR (95% CI)		RRR (95% CI)	
		Unadjusted	Adjusted *	Unadjusted	Adjusted *	Unadjusted	Adjusted *
Norway	2414 (3.3)	Reference	Reference	Reference	Reference	Reference	Reference
High-income countries	489 (3.3)	0.85 (0.49-1.49)	0.79 (0.44-1.41)	1.06 (0.63-1.73)	0.99 (0.85-1.15)	0.88 (0.71-1.10)	0.77 (0.61-0.98)
Europe & Central Asia	476 (3.7)	0.84 (0.53-1.33)	0.94 (0.53-1.68)	1.15 (1.01-1.33)	1.17 (0.98-1.40)	1.47 (1.18-1.83)	1.42 (1.09-1.85)
Sub-Saharan Africa	89 (2.3)	0.82 (0.41-1.65)	0.86 (0.37-1.96)	0.70 (0.49-1.00)	0.57 (0.37-0.87)	1.30 (0.97-1.92)	1.23 (0.79-1.91)
North Africa & the Middle East	142 (3.1)	0.54 (0.22-1.35)	0.68 (0.25-1.82)	1.12 (0.87-1.43)	1.23 (0.93-1.62)	0.78 (0.52-1.17)	0.64 (0.39-1.05)
South Asia	58 (2.6)	0.22 (0.03-1.60)	0.27 (0.08-0.88)	0.87 (0.51-1.28)	0.86 (0.56-1.33)	1.31 (0.81-2.12)	1.37 (0.82-2.27)
Southeast Asia, East Asia & Pacific	109 (2.2)	0.31 (0.12-0.77)	0.32 (0.13-0.82)	0.68 (0.51-0.90)	0.56 (0.41-0.77)	0.83 (0.50-1.38)	0.74 (0.43-1.25)
Latin America & the Caribbean	39 (3.7)	2.31 (0.69-7.74)	2.28 (0.66-7.83)	1.49 (0.96-2.32)	1.01 (0.61-1.66)	0.91 (0.37-2.23)	0.65 (0.24-1.79)

Justert for mors alder, fødselsår, utdanning, sivil status, røyking, fars fødested og helseregion

### Akutt keisersnitt

Maternal Region of Origin	Cases n (%)	Underweight (BMI < 18.5) n = 407 (9.1%)		Normal (BMI 18.5-24.9) n = 7122 (12.0%)		Overweight/obese (BMI ≥25.0) n = 5115 (18.7%)	
		RRR (95% CI)		RRR (95% CI)		RRR (95% CI)	
		Unadjusted	Adjusted *	Unadjusted	Adjusted *	Unadjusted	Adjusted *
Norway	9562 (12.9)	Reference	Reference	Reference	Reference	Reference	Reference
High-income countries	1949 (13.2)	0.98 (0.67-1.45)	0.86 (0.57-1.30)	1.04 (0.96-1.12)	0.97 (0.89-1.06)	1.10 (0.99-1.21)	1.03 (0.93-1.14)
Europe and Central Asia	1642 (12.7)	1.03 (0.75-1.41)	1.01 (0.68-1.49)	1.13 (1.04-1.22)	1.11 (1.01-1.22)	1.04 (0.92-1.18)	0.92 (0.84-1.02)
Sub-Saharan Africa	992 (25.3)	2.03 (1.46-2.97)	2.06 (1.33-3.22)	2.63 (2.35-2.95)	2.61 (2.28-2.99)	2.40 (2.05-2.81)	2.18 (1.81-2.63)
North Africa & the Middle East	690 (14.9)	1.44 (0.93-2.23)	1.39 (0.83-2.37)	1.24 (1.09-1.41)	1.25 (1.07-1.45)	1.27 (1.09-1.49)	1.28 (1.06-1.54)
South Asia	392 (17.2)	2.24 (1.36-3.72)	2.59 (1.45-4.62)	1.32 (1.11-1.58)	1.48 (1.23-1.79)	1.66 (1.34-2.05)	1.64 (1.29-2.08)
Southeast Asia, East Asia & Pacific	938 (19.2)	1.83 (1.33-2.52)	1.52 (1.06-2.18)	1.86 (1.68-2.06)	1.65 (1.47-1.84)	1.56 (1.29-1.88)	1.37 (1.12-1.68)
Latin America & the Caribbean	231 (22.1)	2.75 (1.19-6.36)	2.37 (0.99-5.65)	2.02 (1.63-2.51)	1.62 (1.29-2.04)	1.67 (1.19-2.33)	1.42 (0.99-2.04)

Justert for mors alder, fødselsår, utdanning, sivil status, røyking, fars fødested og helseregion

Har migrantkvinner som har bodd i Norge i mer enn 5 år høyere eller lavere risiko for akutt eller planlagt keisersnitt enn de nyankomme?

Table 4. Association between maternal region of origin and elective and emergency CS by length of residence among foreign-born women (n = 32,688).

Length of Residency	Elective CS					
	0-4 years n = 488 (46.2%)		5 years n = 428 (40.7%)		>5 years n = 138 (13.1%)	
	RRR (95% CI)		RRR (95% CI)		RRR (95% CI)	
	Unadjusted	Adjusted *	Unadjusted	Adjusted *	Unadjusted	Adjusted *
Maternal region of origin						
High-income countries	Reference	Reference	Reference	Reference	Reference	Reference
Europe & Central Asia	0.93 (0.70-1.22)	1.07 (0.79-1.44)	1.58 (1.17-2.13)	1.90 (1.36-2.68)	0.74 (0.43-1.28)	0.66 (0.37-1.16)
Sub-Saharan Africa	0.78 (0.50-1.15)	0.74 (0.44-1.25)	0.80 (0.48-1.35)	1.02 (0.58-1.84)	0.82 (0.35-1.87)	0.95 (0.39-2.31)
North Africa & the Middle East	0.70 (0.47-1.07)	0.78 (0.49-1.24)	1.15 (0.77-1.72)	1.56 (0.99-2.48)	0.77 (0.39-1.51)	0.70 (0.33-1.48)
South Asia	0.47 (0.24-0.92)	0.51 (0.25-1.04)	1.37 (0.75-2.52)	1.84 (0.95-3.56)	0.40 (0.09-1.74)	0.20 (0.03-1.55)
Southeast Asia, East Asia & Pacific	0.52 (0.33-0.82)	0.48 (0.47-1.82)	1.04 (0.68-1.57)	1.27 (0.82-1.98)	0.46 (0.17-1.23)	0.35 (0.12-1.07)
Latin America & the Caribbean	1.14 (0.61-2.13)	0.92 (0.47-1.82)	1.44 (0.68-3.05)	1.44 (0.65-3.23)	1.78 (0.69-4.50)	1.16 (0.38-3.57)

Length of residency	Emergency CS					
	0-4 years n = 2815 (52.2%)		5 years n = 1849 (34.3%)		<5 years n = 727 (13.5%)	
	RRR (95% CI)		RRR (95% CI)		RRR (95% CI)	
	Unadjusted	Adjusted *	Unadjusted	Adjusted *	Unadjusted	Adjusted *
Maternal region of origin						
High-income countries	Reference	Reference	Reference	Reference	Reference	Reference
Europe & Central Asia	0.92 (0.79-1.06)	1.01 (0.86-1.16)	1.07 (0.91-1.26)	1.13 (0.95-1.35)	0.88 (0.50-0.91)	0.71 (0.51-0.97)
Sub-Saharan Africa	2.37 (2.00-2.80)	2.70 (2.19-3.32)	2.12 (1.74-2.59)	2.38 (1.88-2.97)	1.91 (1.33-2.73)	1.93 (1.28-2.95)
North Africa & the Middle East	1.14 (0.95-1.38)	1.23 (0.99-1.52)	1.21 (0.99-1.48)	1.28 (0.99-1.68)	0.82 (0.57-1.18)	0.88 (0.66-1.16)
South Asia	1.20 (0.95-1.53)	1.39 (1.07-1.81)	1.33 (0.97-1.83)	1.60 (1.14-2.24)	1.37 (0.84-2.23)	1.57 (0.93-2.68)
Southeast Asia, East Asia & Pacific	1.70 (1.43-2.01)	1.72 (1.43-2.06)	1.71 (1.42-2.05)	1.85 (1.52-2.25)	1.47 (1.01-2.13)	1.58 (1.06-2.36)
Latin America & the Caribbean	1.86 (1.40-2.46)	1.71 (1.27-2.31)	1.62 (1.11-2.36)	1.84 (1.11-2.43)	1.92 (1.15-3.21)	2.02 (1.17-3.48)

Adjusted for pre-pregnancy BMI, infant's year of birth, education, marital status, smoking, paternal birthplace and Norwegian health regions.

## Oppsummering

- **Planlagt keisersnitt:**
- ↓ under- og normalvektige kvinner fra Sørøst Asia/ Stillehavet
- ↓ normalvektige kvinner fra Afrika sør for Sahara
- ↑ kvinner med overvekt og fedme fra Europa og sentra Asia
- **Akutt keisersnitt:**
- Høy risiko hos alle normalvektige kvinner med unntak av de fra høyinntektsland
- ↑↑ kvinner fra Afrika sør for Sahara med under- og normalvekt eller overvekt/fedme

## Oppsummering II - Botid

- **Planlagt keisersnitt:**
- ↑ Europa & Sentral Asia med botid >5 år
- **Akutt keisersnitt:**
- ↑ Afrika sør for Sahara med bade kort og lang botid
- ↑ Sør-Asia; Sørøst Asia, Øst Asia & Stillehavet; Latin-Amerika & Karibien