

A Danish register-based nested case-control study of socio-economic risk factors on suicide attempts risk: the influence from psychiatric morbidity

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Aim: The study was undertaken to identify socio-economic risk factors for first registered suicide attempts and to analyse psychiatric morbidity's influence on the factor.



Plan for the presentation.

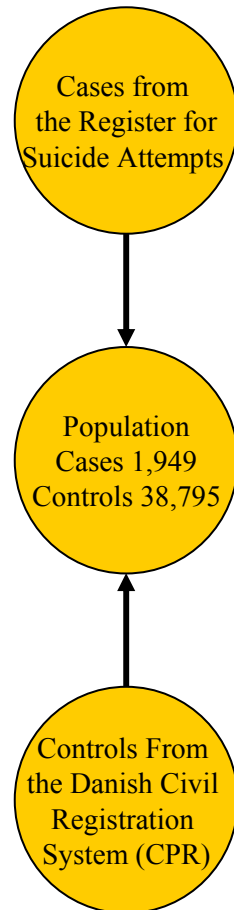
- The study (RISC)
- The population
- Data
- Main results
- Limitations and strengths
- Conclusion



- Methodology: Danish register-based nested case/control study
- Participants: 1,949 suicide attempters (cases) and 38,795 non-attempters (controls), matched by gender, age and place of residence



Suicide attempters were identified from the Register for Suicide Attempts.

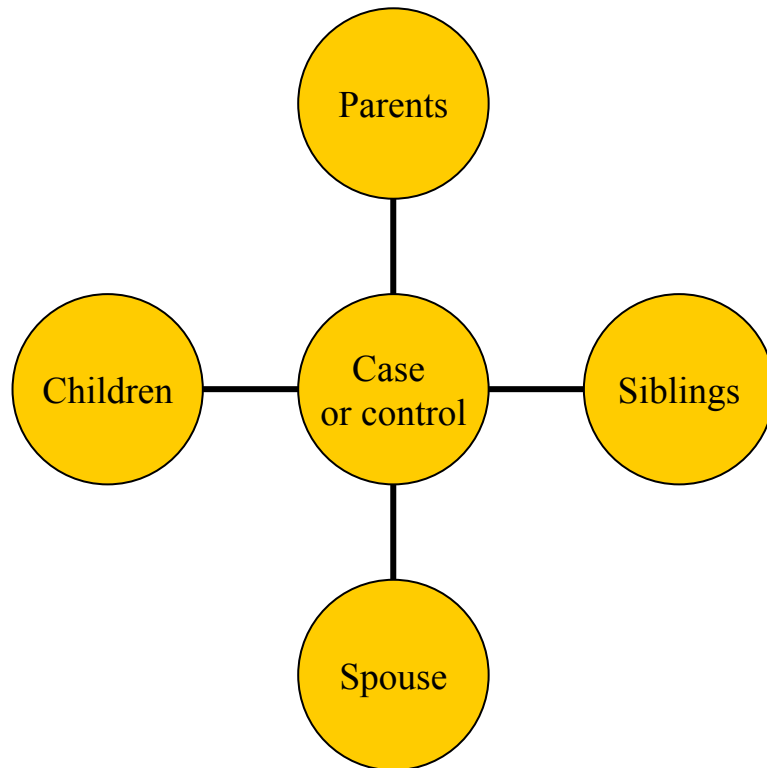


For every case:

- Personal identification number (CPR)
- Date of the **first** registered attempted suicide (called matching date)
- Age
- Gender
- Approximately 20 controls matched by gender, age and place of living (In the County of Funen, in Denmark)



Family relations were identified in the Demographic Database



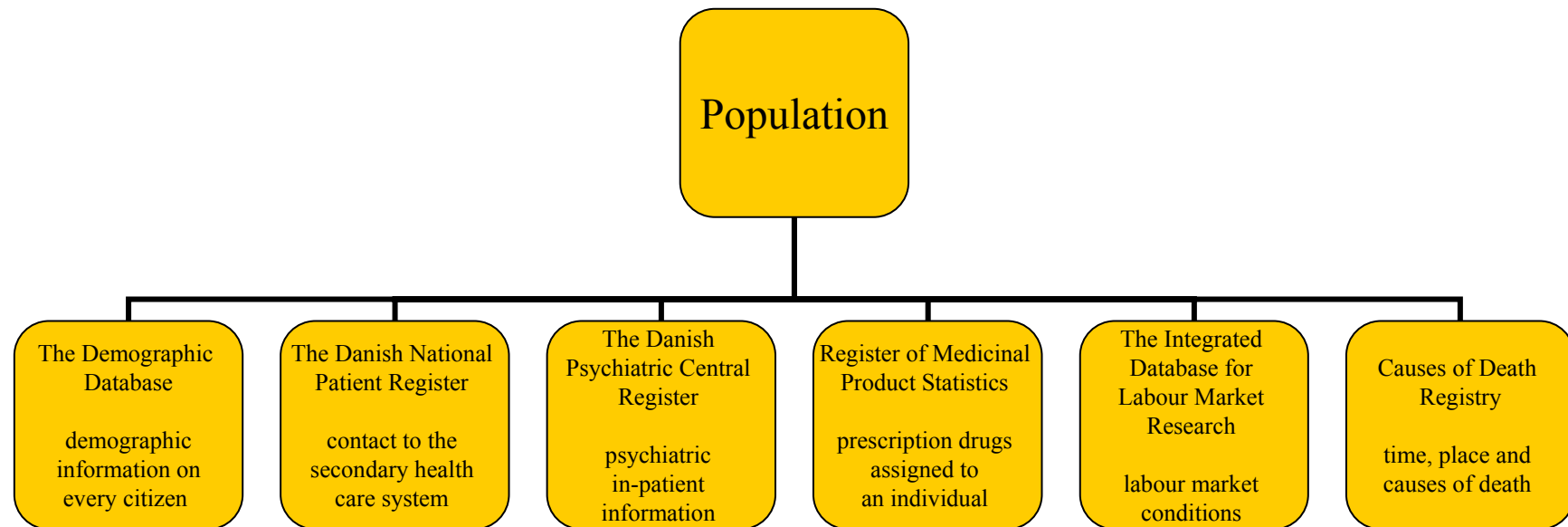
Population:

- Cases n=1,949
- Controls n= 38,795
- Family (a lot)



Data on the population

For every individual data from various registers were found:



Data were analyzed by the use of conditional logistic regression



Socio-economic risk factors for suicide attempts: the influence from psychiatric morbidity

Attempted suicide during the period 1996-2001

Potential socio-economic risk factors were estimated

Psychiatric morbidity's influence on socio-economic risk factor was analyzed by adding psychiatric morbidity to the univariate model and then calculating the reduction in percentage of the risk ratio.

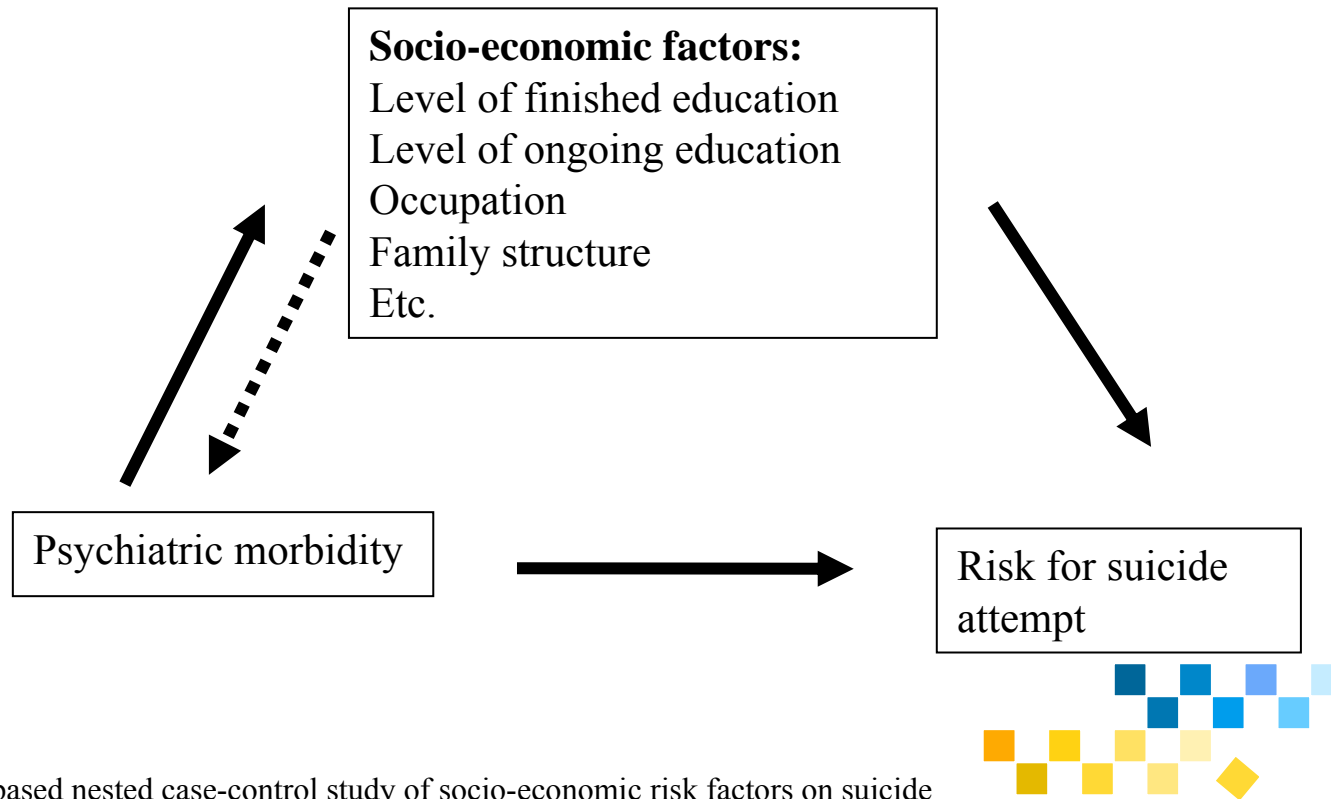
RR level one model - RR level two model

RR level one model - 1



Socio-economic risk factors for suicide attempts: the influence from psychiatric morbidity

Pathway of possible causal relation between psychiatric morbidity, socio-economic circumstances and suicide attempt



Definition of factors

Psychiatric morbidity = Substance abuse (hospitalized) + Psychiatric disorder (hospitalized) + Psychopharmacological drugs (on prescription)

Socio-economic risk factors:

Level of completed education

Level of ongoing education

Occupation

Death of child

Having children

Living alone

Separating from a partner

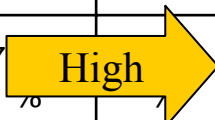
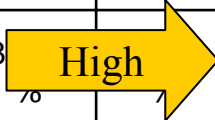
Moving between counties

Etc.



Socio-economic risk factors

Relative risk and CI

Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Mental morbidity:									
Substance abuse	33.5** 26.2-42.9	37.7** 27.6-51.4	35.1** 29.0-42.5	8.06** 6.0-10.9	6.81** 4.7-9.8	7.24** 5.7-9.1	77%		81.70%
Psychiatric disorder	19.3** 15.6-24.0	22.4** 18.7-26.7	21.1** 18.4-24.2	2.96** 2.2-3.9	5.63** 4.5-7.0	4.43** 3.7-5.2	88%		82.94%
Psychopharmacological drugs	19.4** 16.3-23.0	21.0** 17.8-24.8	20.2** 18.0-22.7	11.66** 9.7-14.1	12.97** 10.9-15.5	12.33** 10.8-14.0	42.07%	40.15%	40.99%

* p<0.05

** p<0.001



Socio-economic risk factors

Relative risk and CI

Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Completed education:									
Elementary school (baseline)	1.00	1.00	1.00	1.00	1.00	1.00			
Grammar-school level	0.38** 0.3-0.4	0.39** 0.3-0.5	0.38** 0.3-0.4	0.46** 0.4-0.6	0.48** 0.4-0.6	0.47** 0.4-0.5	12.90%	14.75%	14.52%
Higher education	0.27** 0.2-0.3	0.29** 0.2-0.4	0.28** 0.2-0.3	0.40** 0.3-0.5	0.46** 0.4-0.6	0.43** 0.4-0.5	17.81%	23.94%	20.83%
No information	1.4* 1.0-1.8	1.13 0.8-1.6	1.25* 1.0-1.5	1.24 0.9-1.8	1.37 1.0-2.0	1.28 1.0-1.7	40.00%	-184.6%	-12.0%

* p<0.05

** p<0.001



Socio-economic risk factors

Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Ongoing education:									
None	1.00	1.00	1.00	1.00	1.00	1.00			
Elementary school	0.18* 0.1-0.5	0.47* 0.3-0.8	0.39** 0.2-0.6	0.21* 0.1-0.6	0.64 0.4-1.1	0.49* 0.3-0.8	3.66%	32.08%	16.39%
Grammar-school level	0.53* 0.4-0.8	0.62** 0.5-0.8	0.58** 0.5-0.7	0.55* 0.4-0.8	0.70* 0.5-0.9	0.64** 0.5-0.8	4.26%	21.05%	14.29%
Higher education	0.36** 0.2-0.6	0.44** 0.3-0.6	0.41** 0.3-0.5	0.35** 0.2-0.6	0.48** 0.3-0.7	0.42** 0.3-0.6	-1.56%	7.14%	1.69%

* p<0.05

** p<0.001



Socio-economic risk factors

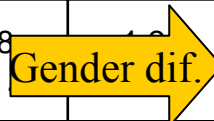
Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Occupation:									
Earner	1.00	1.00	1.00	1.00	1.00	1.00			
Not available for work	3.76** 3.1-4.6	3.51** 2.9-4.2	3.61** 3.2-4.1	2.21** 1.8-2.8	2.26** 1.8-2.8	2.22** 1.9-2.6	56.16%	49.80%	53.26%
Unemployed	1.40 0.9-2.2	2.19** 1.5-3.1	1.82** 1.4-2.4	1.18 0.7-1.9	1.65* 1.1-2.4	1.45* 1.1-2.0	55.00%	High	45.12%
Pensioner	6.84** 5.5-8.5	7.34** 5.9-9.1	7.08** 6.1-8.3	1.67* 1.3-2.2	1.84** 1.4-2.4	1.71** 1.4-2.1	88.53%	High	88.32%
Self-employed or manager	0.49** 0.4-0.7	0.69* 0.5-1.0	0.56** 0.4-0.7	0.51** 0.3-0.7	0.76 0.5-1.1	0.60** 0.5-0.8	3.92%	22.58%	9.09%
No information	15.5** 8.4-28.8	9.51*** 5.0-18.0	12.2** 7.9-19.0	3.48* 1.6-7.4	4.91** 2.5-9.8	4.18** 2.5-7.0	82.90%	54.05%	71.61%
Change of work	0.7* 0.5-0.9	0.7* 0.6-0.9	0.7** 0.6-0.8	0.80 0.6-1.0	0.87 0.7-1.1	0.84 0.7-1.0	33.33%	High	46.67%

* p<0.05
** p<0.001



Socio-economic risk factors


Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Children									
Death of child	1.69 1.0-2.9	1.57* 1.1-2.3	1.61* 1.2-2.2	1.65 0.9-3.1	1.18 0.7-1.8	1.18 0.7-1.8	5.80%	68.42%	44.25%
No child	0.97 0.8-1.2	0.99 0.8-1.2	0.98 0.8-1.1	0.69** 0.5-0.9	0.78* 0.6-1.0	0.73* 0.6-0.9	-933%	-2100%	-1250%
Age<4 years	0.80 0.6-1.0	0.47** 0.4-0.6	0.63** 0.5-0.8	0.99 0.7-1.3	0.52** 0.4-0.7	0.72* 0.6-0.9	95.00%	9.43%	24.32%
Age≥4 years	1.00	1.00	1.00	1.00	1.00	1.00	-	-	-



* p<0.05
** p<0.001



Socio-economic risk factors

Risk factors:	Level 1 crude analysis			Level 2 controlled analysis			Percent reduction in the RR		
	Male	Female	Both	Male	Female	Both	Male	Female	Both
Social relations:									
Living alone	2.9** 2.5-3.4	2.4** 2.1-2.8	2.64** 2.4-2.9	1.62** 1.4-1.9	1.50** 1.3-1.8	1.55** 1.4-1.7	67.37%		66.46%
Separating from a partner	3.18** 2.6-3.9	3.56** 3.0-4.3	3.39** 3.0-3.9	2.95** 2.3-2.8	2.55* 2.0-3.1		10.55%	39.45%	27.20%
Moving between counties	2.5** 2.0-3.2	2.4** 1.9-3.0	2.4** 2.1-2.9	2.00** 1.5-2.7	2.08** 1.6-2.7	2.05** 1.7-2.5	33.33%	22.86%	25.00%

* p<0.05

** p<0.001



Limitations and strengths

Limitations

Cases are selected from RfSA, which is a longitudinal register that **only** includes suicide attempts that result in a contact to the health care system

It may not be an index suicide attempt

The structure of the registers limits our information and therefore does not provide an optimal retrospective data collection period

Strengths

The number of variables in the study is high

The relatively large number of suicide attempters and controls ensure that it is possible to make good estimation of the risk factors



Conclusion

- Decompose the risk from socio-economic factors into a direct effect and an effect attributed by psychiatric morbidity
- A better understanding of the interaction between risk factors



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MScE Erik Christiansen and MSc Børge F Jensen, Centre for suicide research, 2006

Thank you for listening

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