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### **Risk factors for hospital admission after a trampoline related injury in children and adolescents– a cross-sectional study based on EU-IDB (2008 and 2018)**

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Trampolines = high popularity among children + frequent cause of injury

In US Risk factors for hospital admission Trampoline Related Injury (TRI)

1. trampoline parks,
2. falls while on the trampoline,
3. adolescent age,
4. type of injury

TRI in Europe

74% among 5-14 years old, 71% falls,  
63% at home but increasing number of trampoline parks,  
40% fractures to the extremities,  
9% hospital admission,

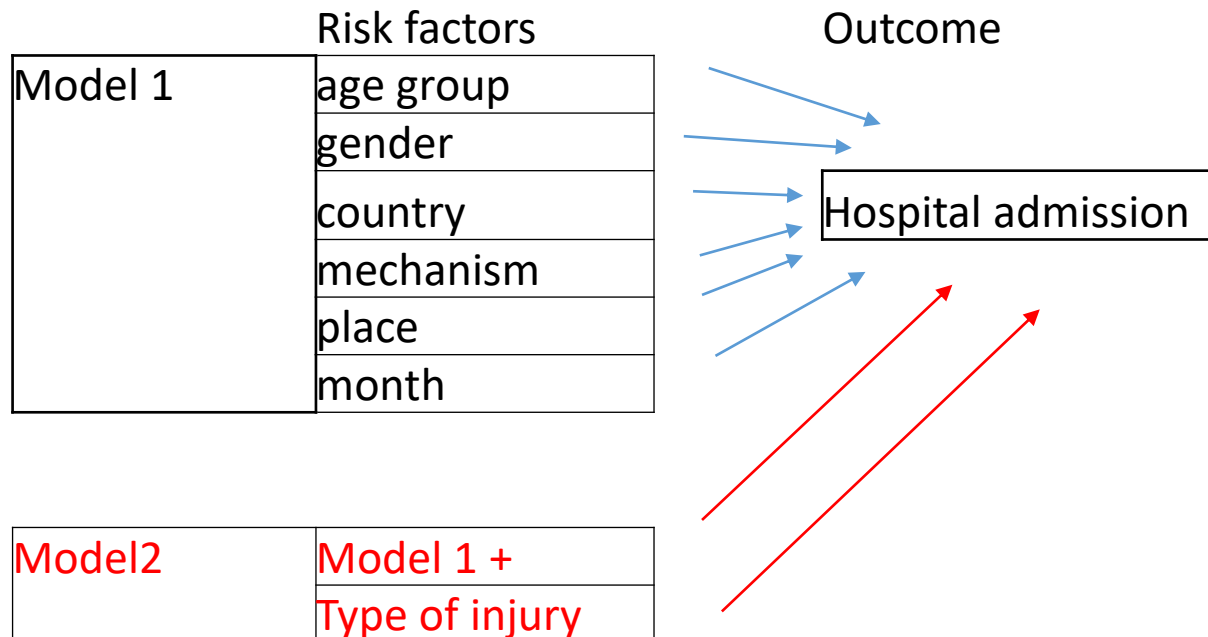
no exhaustive study on risk factors

Objective: Identify risk factors associated with hospital admission after a trampoline related injury in European countries

IDB-FDS data from 2008-2018

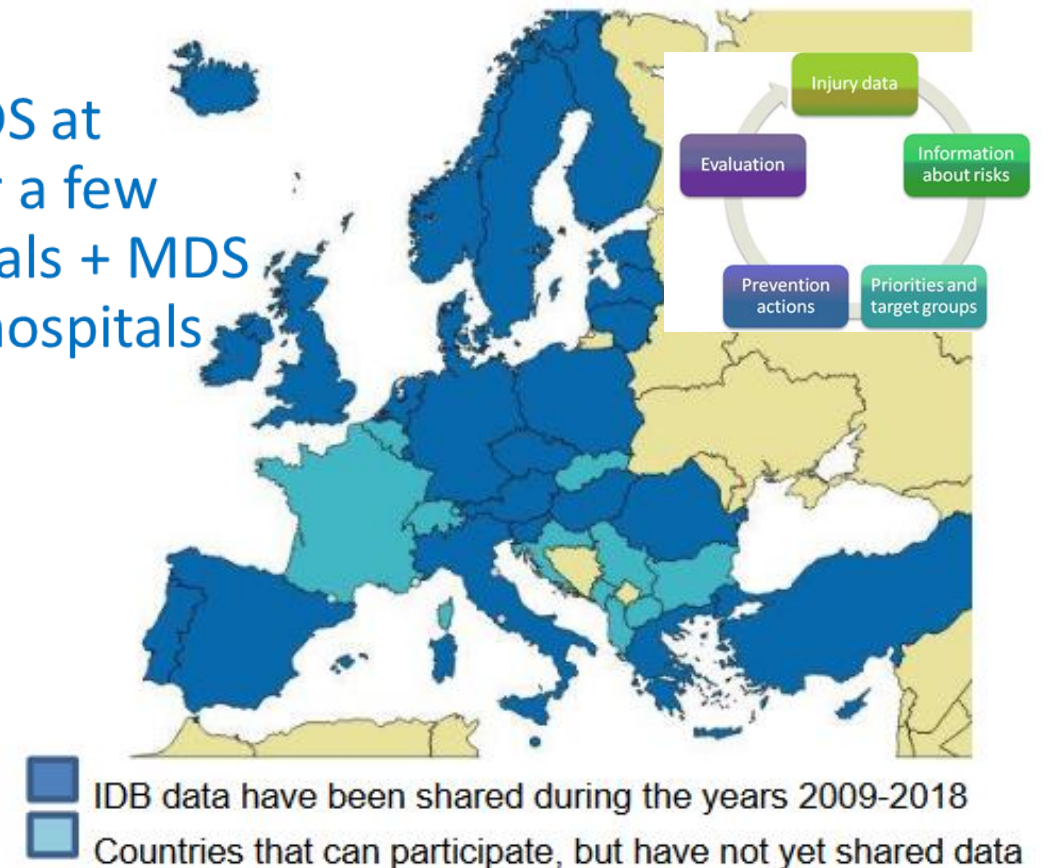
- 6 EU countries , HLA, school and sport accidents ,< 18 years old
- At least an object's code 10.0310 (Trampoline) involved

Multivariate logistic regression (using SPSS 27.0)

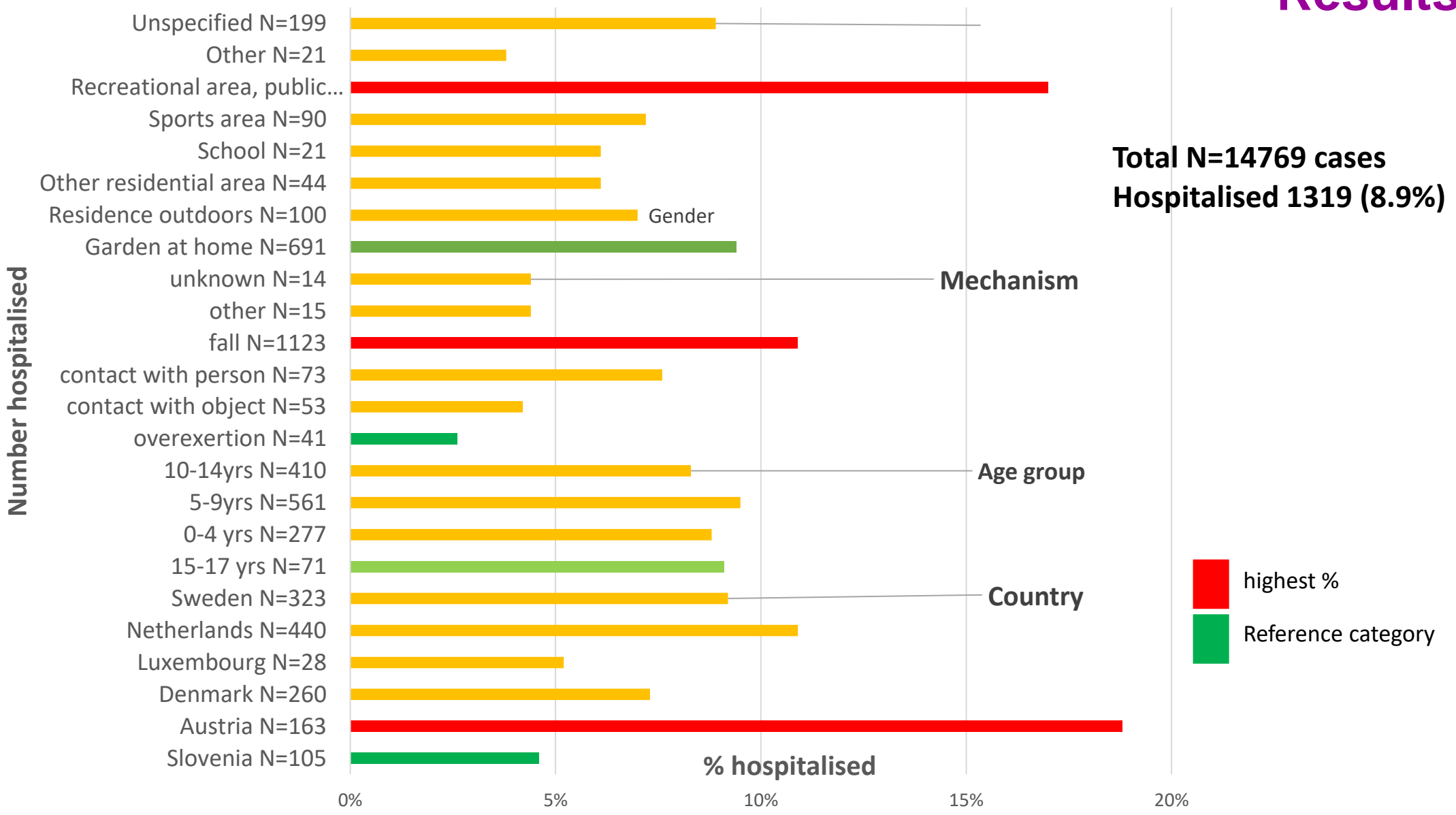


**Figure 1: Map of the European IDB-region.**

IDB FDS at  
one or a few  
hospitals + MDS  
at all hospitals



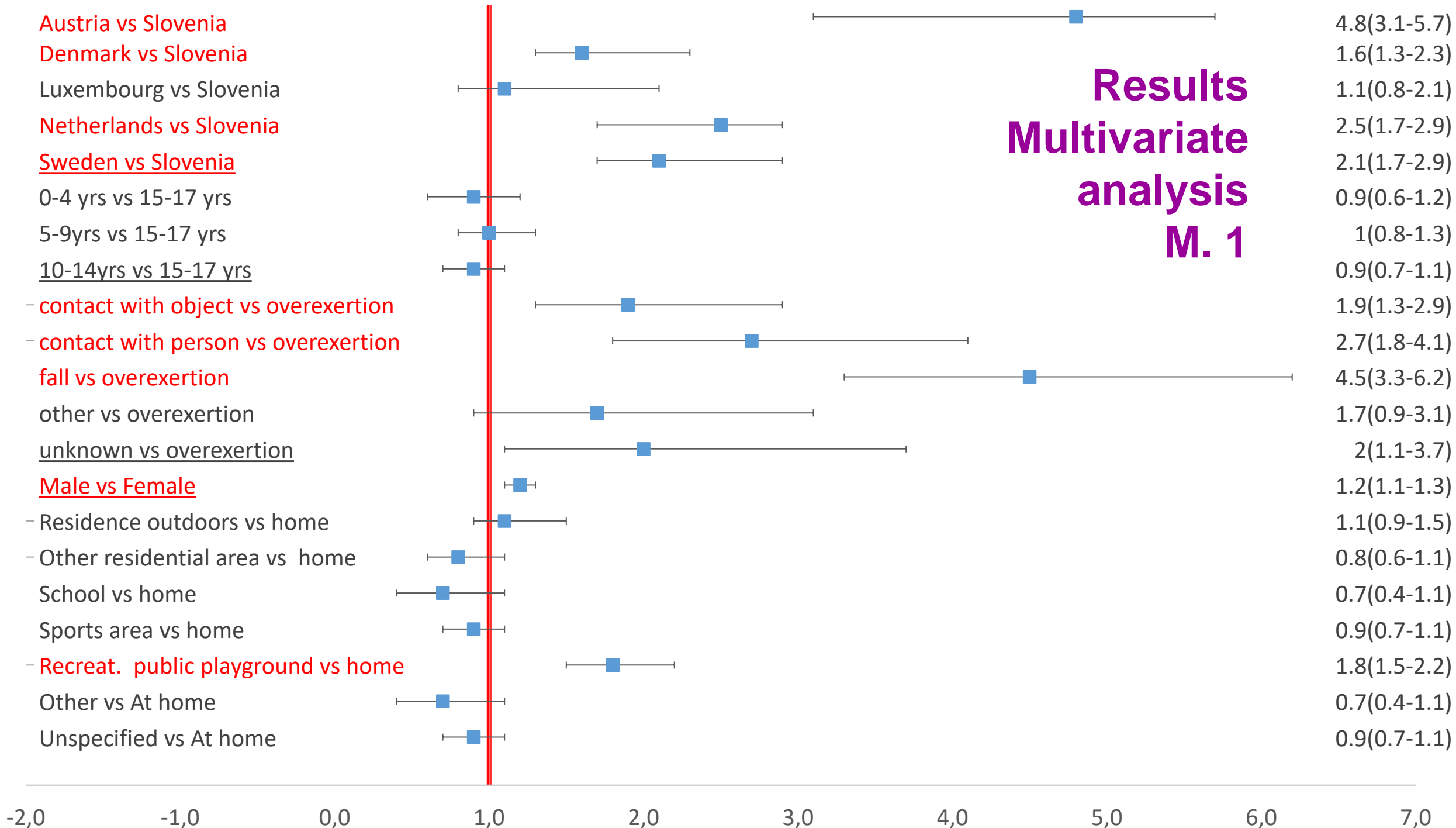
# Results



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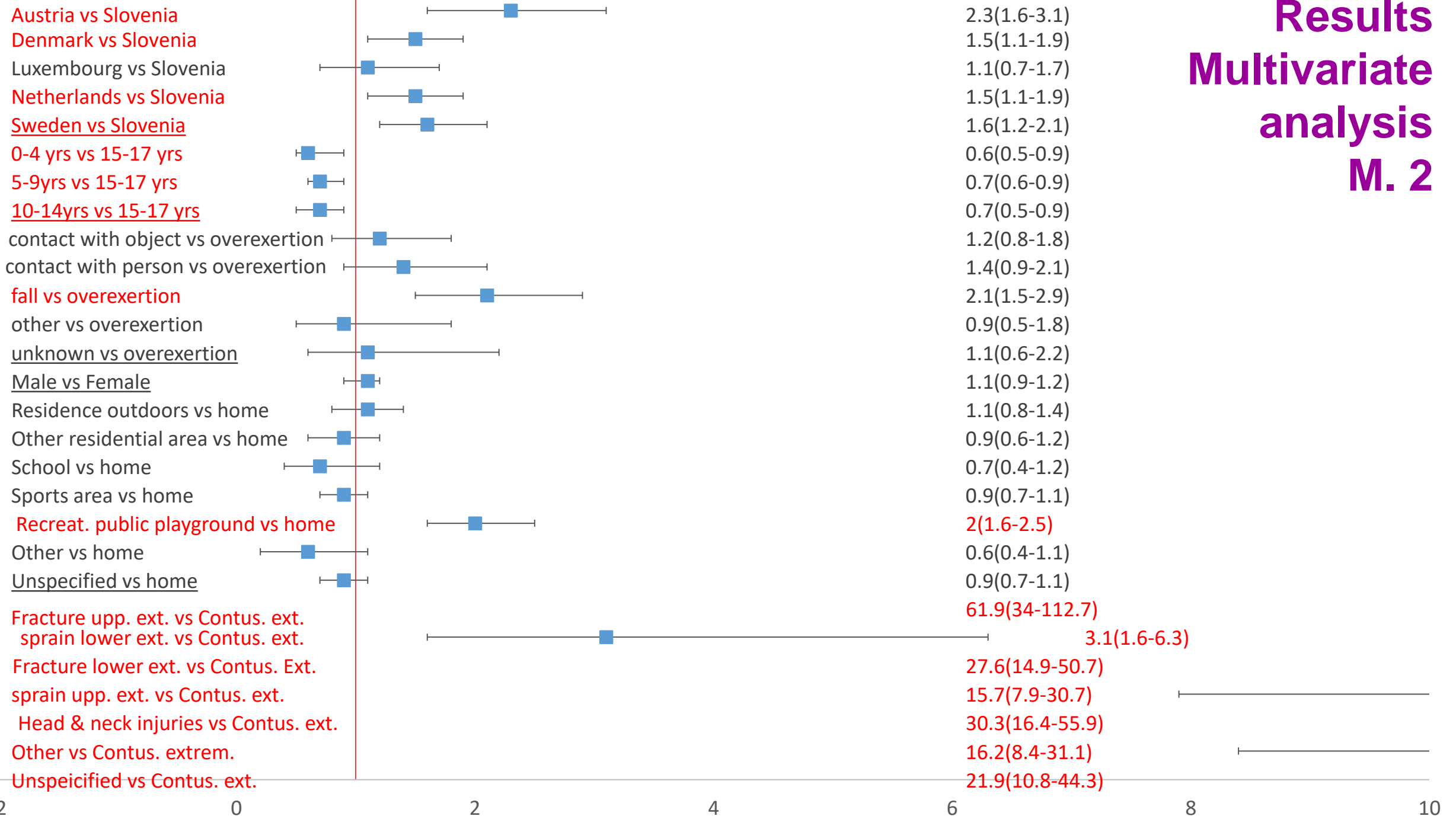
# Results Multivariate analysis M. 1



# Results

## Multivariate analysis

### M. 2



		OR (ic95%)				OR (ic95%)	
Country	% Hospit.	model 1	model 2	Place of occurrence	% Hospit.	model 1	model 2
Slovenia	4.6%	1		Garden at home	9.4%	1	
Austria	18.8%	4.8(3.1-5.7)	2.3(1.6-3.1)	Residence outdoors	7.0%	1.1(0.9-1.5)	1.1(0.8-1.4)
Denmark	7.3%	1.6(1.3-2.3)	1.5(1.1-1.9)	Other residential area	6.1%	0.8(0.6-1.1)	0.9(0.6-1.2)
Luxembourg	5.2%	1.1(0.8-2.1)	1.1(0.7-1.7)	School	6.1%	0.7(0.4-1.1)	0.7(0.4-1.2)
Netherlands	10.9%	2.5(1.7-2.9)	1.5(1.1-1.9)	Sports area	7.2%	0.9(0.7-1.1)	0.9(0.7-1.1)
Sweeden	9.2%	2.1(1.7-2.9)	1.6(1.2-2.1)	Recreat., public playground	17.0%	1.8(1.5-2.2)	2.0(1.6-2.5)
Age group				Other	3.8%	0.7(0.4-1.1)	0.6(0.4-1.1)
15-17 yrs	9.1%	1	1	Unspecified	8.9%	0.9(0.7-1.1)	0.9(0.7-1.1)
0-4 yrs	8.8%	0.9(0.6-1.2)	0.6(0.5-0.9)	Gender			
5-9 yrs	9.5%	1(0.8-1.3)	0.7(0.6-0.9)	Female	8.3%	1	1
10-14 yrs	8.3%	0.9(0.7-1.1)	0.7(0.5-0.9)	Male	9.5%	1.2(1.1-1.3)	1.1(0.9-1.2)
Mechanism				Type of Injury			
Overexertion	2.6%	1	1	Contusion of extremities	0.4%		1
Contact with object	4.2%	1.9(1.3-2.9)	1.2(0.8-1.8)	Fracture upper extremities	21.5%		61.9(34.0-112.7)
Contact with person	7.6%	2.7(1.8-4.1)	1.4(0.9-2.1)	Sprain of lower extremities	1.1%		3.1(1.6-6.3)
Fall	10.9%	4.5(3.3-6.2)	2.1(1.5-2.9)	Fracture lower extremities	10.4%		27.6(14.9-50.7)
Other	4.4%	1.7(0.9-3.1)	0.9(0.5-1.8)	Sprain upper extremities	6.0%		15.7(7.9-30.7)
Unknown	4.4%	2(1.1-3.7)	1.1(0.6-2.2)	Head and neck injuries	10.4%		30.3(16.4-55.9)
				Other	6.4%		16.2(8.4-31.1)
				Unspeicified	7.8%		21.9(10.8-44.3)



After adjusting for age group, place of occurrence, mechanism, month, gender, type of injury and country the odds of hospital admission is higher

- Among 15-17 years old, (compared to all other age groups)
- mechanism is a fall  $OR(CI95\%)=2.1(1.5-2.9)$  (compared to overexertion)
- place of occurrence is Recreational area, public playground (trampoline parks)  
 $OR(CI95\%)=2.0(1.6-2.5)$  compared to all other settings

Compared to contusions to the extremities, fractures to the extremities, head and neck injuries, were more likely to be hospitalised

Findings similar to other recent studies in US

Significative country heterogeneity, & positive confounding by type of injury

Trampoline parks, falling, 15-17 year old, are

1. associated with hospital admission after a TRI in Europe
2. To be targeted for prevention activities

The significant country variations could reflect:

- 1) the functioning of the health care services with more or less primary health care centres treating injury patients leaving the more severe cases for the hospital's ED-s,
- 2) differences in applying the IDB methodology

To avoid trampoline injuries:

- a) netting, safety equipment do not reduce risk
- b) no trampoline at home
- c) 1 child at a time
- d) adult supervision
- e) **discourage somersaults, flips**