

Clustering of risk factors for chronic non-communicable diseases among Brazilian adolescents

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Cape Town
2016

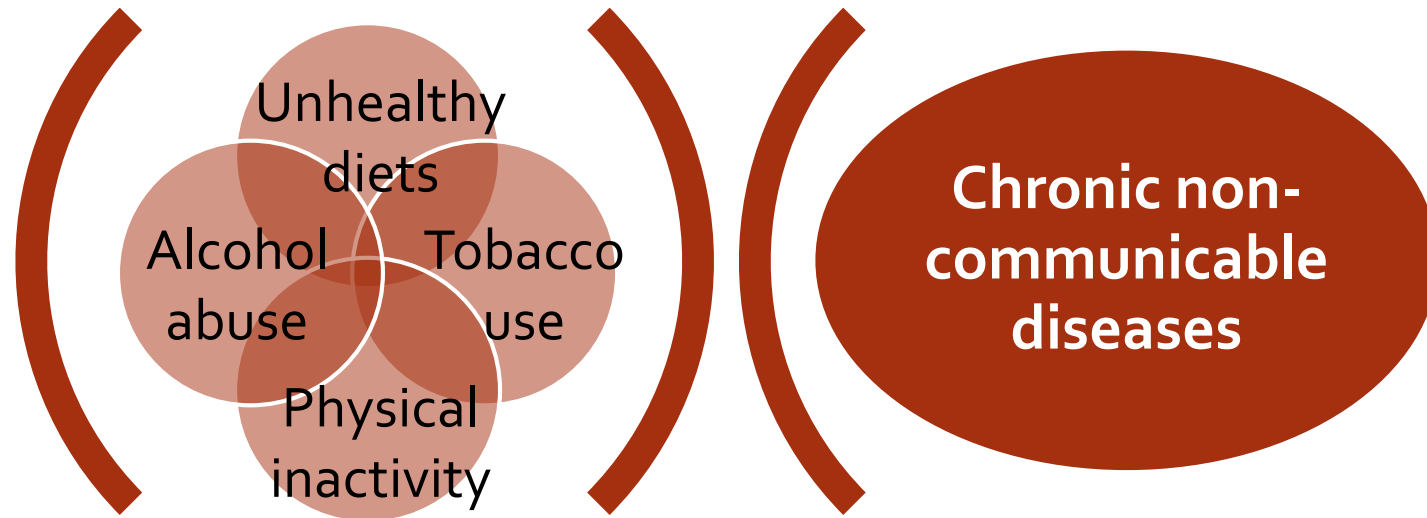
Topics

- **Introduction and Objective**
- **Methods**
- **Results and Conclusion**

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Introduction | Context



A small group of modifiable risk factors account for most CNCD deaths and for a substantial fraction of the associated burden of disease

CNCD



63% for all deaths worldwide (2008)
72% for deaths in Brazil (2007)

Introduction | Priorities



Adolescence:

Important period in which lifestyle habits are being formed and consolidated

Priority in preventive actions

Literature about cluster:

- Adults → Main group studied
- Adolescents → High-income countries

Objective

To investigate the clustering of risk behaviors for chronic non-communicable diseases among Brazilian adolescents

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- **Methods**

- **Results and Conclusion**

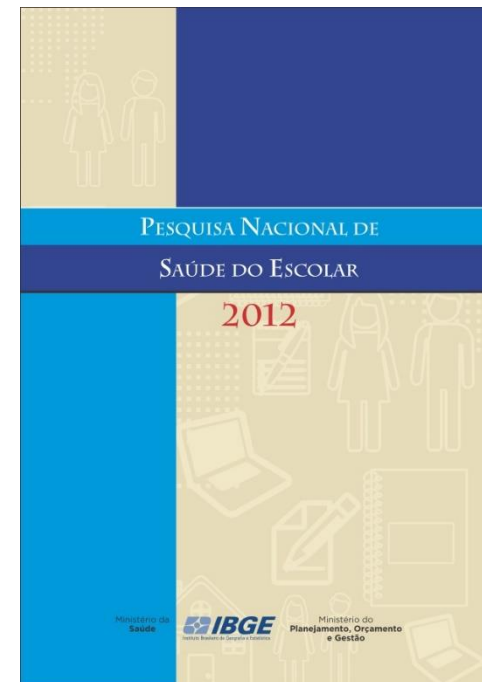
Methods | Study population and data collection

National Adolescent School-based Health Survey – Pesquisa Nacional de Saúde do Escolar (PeNSE) 2012:

- **National representative** sample of students from the final (9^o) year of elementary education
- Public and private schools

2,842 schools and
104,109 students was enrolled in the
survey

Data collected with structured, **self-administered** questionnaire



We included 107,823 adolescentes with
complete answers

Methods | Analyzed variables

Four lifestyle risk factors were used:

- **Low fruits and vegetables intake:** having consumed fruits and vegetables less than **five days in the last week**
 - **Physical inactivity:** Not performing at least **420 minutes** of physical activity in the last week (60 minutes per day)
 - **Alcohol intake:** Ingesting **one or more doses** in the last 30 days
 - **Smoking:** Having smoked **one or more cigarettes** in the last 30 days
- Risk behaviors were coded as a binary variable (presence=1; absence=0)



Methods | Statistical analysis

- **Prevalence of multiple behaviors:** sum of behaviors (score ranging from 0 to 4)
- **Clustering :** ratio between the **observed** and **expected** (O/E) prevalence of each combination of behavior
- **Expected:** calculated by multiplying the individual probabilities of each behavior

Example:



50%



50%

Expected together = $50\% \times 50\% = 25\%$

The **16 possible combinations** of behaviors were examined for their observed (O) and expected (E) prevalence and their respective O/E ratio

If a combination is **more prevalent than can be expected** on the basis of the prevalence of the separate risk factors it is defined as a **clustering (O/E ratio >1)**

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Results | Description

98.8% of adolescents interviewed provided complete information for all four outcomes

Socio-demographic variables	%
Gender	
Girls	52.4
Boys	47.6
Age	
<12	0.8
13 - 15	85.9
>16	13.3
Race	
Black/Brown	57.5
White	34.6
Type of school	
Public	79.2
Private	20.8

Risk factors	%
Low fruits and vegetables intake	83.4
Physical inactivity	78.8
Alcohol intake	25.6
Smoking	5.3
Number of risk factors	
0	4.0
1	20.7
2	56.5
3	16.1
4	2.7

Low fruits and vegetables intake was the most prevalent risk behavior

Results | Clustering

Number of risks	Physical inactivity	Smoking	Alcohol intake	Low fruit and vegetable intake	Observed (%)	Expected (%)	O/E ratio
4	+	+	+	+	2,74	0,88	3,11
3	+	-	+	+	14,18	15,90	0,89
	+	+	-	+	0,71	2,57	0,28
	+	+	+	-	0,40	0,18	2,28
	-	+	+	+	0,83	0,24	3,50
2	+	-	-	+	50,03	46,38	1,08
	+	+	-	-	0,10	0,51	0,20
	-	-	+	+	3,76	4,27	0,88
	+	-	+	-	2,19	3,17	0,69
	-	+	+	-	0,23	0,05	4,88
1	-	+	-	+	0,20	0,69	0,29
	+	-	-	-	8,48	9,23	0,92
	-	+	-	-	0,05	0,14	0,36
0	-	-	+	-	1,21	0,85	1,42
	-	-	-	+	10,96	12,46	0,88
0	-	-	-	-	3,95	2,48	1,59

Conclusion

- Prevalence of lifestyle-related risk factors for non-communicable diseases are high among Brazilian adolescents
- These risk factors tend to cluster in adolescents
- This result may be important to the development of preventive actions focused on this age group

Thank you!

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