

Lezione 2

Popolazione e Campione

Obiettivi di apprendimento

- Conoscere le differenze tra popolazione e campione
- Conoscere le due maggiori strategie di campionamento
- Individuare errori di campionamento e bias

Le fasi della ricerca



Popolazione vs campione



POPULATIONS AND SAMPLES

PERMANENT CENSUS OF POPULATION AND HOUSING

The permanent census of the population and housing begins in October 2018. For the first time ISTAT conducts not a ten-yearly but an annual survey of the main characteristics of the country's resident population and its social and economic conditions at national, regional and local levels.

The new permanent census of population and housing do not involve all Italian families, but a sample of them each year: about 1,400,000 families resident in 2,800 Italian municipalities.

Moreover, only a percentage of the municipalities (about 1,100 of them) will take part by census operations every year; the remainder will be called to participate once every four years. In this way, all municipalities will be surveyed at least once by 2021.

CENSIMENTI PERMANENTI



POPULATION AND HOUSING

PUBLIC INSTITUTIONS

NONPROFIT INSTITUTIONS

AGRICULTURE

Popolazione vs campione (nella clinica)

Delirium as a Predictor of Mortality in Mechanically Ventilated Patients in the Intensive Care Unit

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Context In the intensive care unit (ICU), delirium is a common yet underdiagnosed form of organ dysfunction, and its contribution to patient outcomes is unclear.

Objective To determine if delirium is an independent predictor of clinical outcomes, including 6-month mortality and length of stay among ICU patients receiving mechanical ventilation.

Design, Setting, and Participants Prospective cohort study enrolling 275 consecutive mechanically ventilated patients admitted to adult medical and coronary ICUs of a US university-based medical center between February 2000 and May 2001. Patients were followed up for development of delirium over 2158 ICU days using the Confusion Assessment Method for the ICU and the Richmond Agitation-Sedation Scale.

Campione di convenienza

-  Un campione di convenienza è un campione estratto da una parte della popolazione a cui abbiamo un facile accesso e che potrebbe non rappresentarla nella sua interezza
-  Tutti i pazienti che si presentano in uno specifico ambulatorio, in uno specifico ospedale, in un dato periodo di tempo

Campionamento casuale semplice



Nel campionamento casuale semplice tutti i soggetti della popolazione hanno la stessa probabilità di venire inclusi nel campione



Un sottoinsieme estratto in modo casuale dall'elenco dei pazienti con la malattia

Campionamento casuale semplice



$$N = 90$$

$$n = 10$$

La Tombola di PianetaBambini.it TABELLONE <small>questo è un estratto di una tombola a 90 numeri. Per giocare vai su www.pianetabambini.it/tombola</small>									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90

Campionamento casuale semplice



$$N = 90$$

$$n = 10$$

49, 65, 25, 74, 18

90, 47, 24, 71, 37

La Tombola di PianetaBambini.it TABELLONE <small>ogni settimana si estraggono a caso 10 numeri da 1 a 90 come pianetabambini.it/tombola</small>									
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
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41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90

Esercizio #1

Abstract

BACKGROUND

Experimental studies and small clinical trials have suggested that treatment with intranasal oxytocin may reduce social impairment in persons with autism spectrum disorder. Oxytocin has been administered in clinical practice to many children with autism spectrum disorder.

METHODS

We conducted a 24-week, placebo-controlled phase 2 trial of intranasal oxytocin therapy in children and adolescents 3 to 17 years of age with autism spectrum disorder. Participants were randomly assigned in a 1:1 ratio, with stratification according to age and verbal fluency, to receive oxytocin or placebo, administered intranasally, with a total target dose of 48 international units daily. The primary outcome was the least-squares mean change from baseline on the Aberrant Behavior Checklist modified Social Withdrawal subscale (ABC-mSW), which includes 13 items (scores range from 0 to 39, with higher scores indicating less social interaction). Secondary outcomes included two additional measures of social function and an abbreviated measure of IQ.



Qual è la popolazione di studio?

- a) Bambini e adolescenti tra 3-17 anni con autismo
- b) Bambini e adolescenti in Inghilterra
- c) Bambini e adolescenti con autismo
- d) Bambini e adolescenti che non presentano sintomi di autismo

Esercizio #1 -- Soluzione

Abstract

BACKGROUND


Experimental studies and small clinical trials have suggested that treatment with intranasal oxytocin may reduce social impairment in persons with autism spectrum disorder. Oxytocin has been administered in clinical practice to many children with autism spectrum disorder.

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Sikich, L. *et al.*, *Intranasal Oxytocin in Children and Adolescents with Autism Spectrum Disorder*, NEJM, 2021

Esercizio #2

Abstract

BACKGROUND

Experimental studies and small clinical trials have suggested that treatment with intranasal oxytocin may reduce social impairment in persons with autism spectrum disorder. Oxytocin has been administered in clinical practice to many children with autism spectrum disorder.

METHODS

We conducted a 24-week, placebo-controlled phase 2 trial of intranasal oxytocin therapy in children and adolescents 3 to 17 years of age with autism spectrum disorder. Participants were randomly assigned in a 1:1 ratio, with stratification according to age and verbal fluency, to receive oxytocin or placebo, administered intranasally, with a total target dose of 48 international units daily. The primary outcome was the least-squares mean change from baseline on the Aberrant Behavior Checklist modified Social Withdrawal subscale (ABC-mSW), which includes 13 items (scores range from 0 to 39, with higher scores indicating less social interaction). Secondary outcomes included two additional measures of social function and an abbreviated measure of IQ.



Qual è il campione selezionato?

- a) Bambini e adolescenti tra 3-17 anni con autismo
- b) Bambini e adolescenti in Inghilterra
- c) Bambini e adolescenti con autismo
- d) Bambini e adolescenti che non presentano sintomi di autismo

Esercizio #2 -- Soluzione

Abstract

BACKGROUND


Experimental studies and small clinical trials have suggested that treatment with intranasal oxytocin may reduce social impairment in persons with autism spectrum disorder. Oxytocin has been administered in clinical practice to many children with autism spectrum disorder.

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Esercizio #3

Table 1. Demographic Characteristics of the Participants

Characteristic	All Participants (N = 277)	
	Oxytocin (N = 139)	Placebo (N = 138)
Age		
Mean — yr	10.4±4.1	10.4±4.0
Distribution — no. (%)		
3–6 yr	34 (24)	35 (25)
7–11 yr	54 (39)	53 (38)
12–17 yr	51 (37)	50 (36)
Sex — no. (%)		
Male	122 (88)	120 (87)
Female	17 (12)	18 (13)



Qual è la numerosità del campione

a) 277

b) 139

c) 130

d) Non è possibile desumerlo dalla tabella

02:00

Sikich, L. *et al.*, *Intranasal Oxytocin in Children and Adolescents with Autism Spectrum Disorder*, NEJM, 2021


Esercizio #3 -- Soluzione

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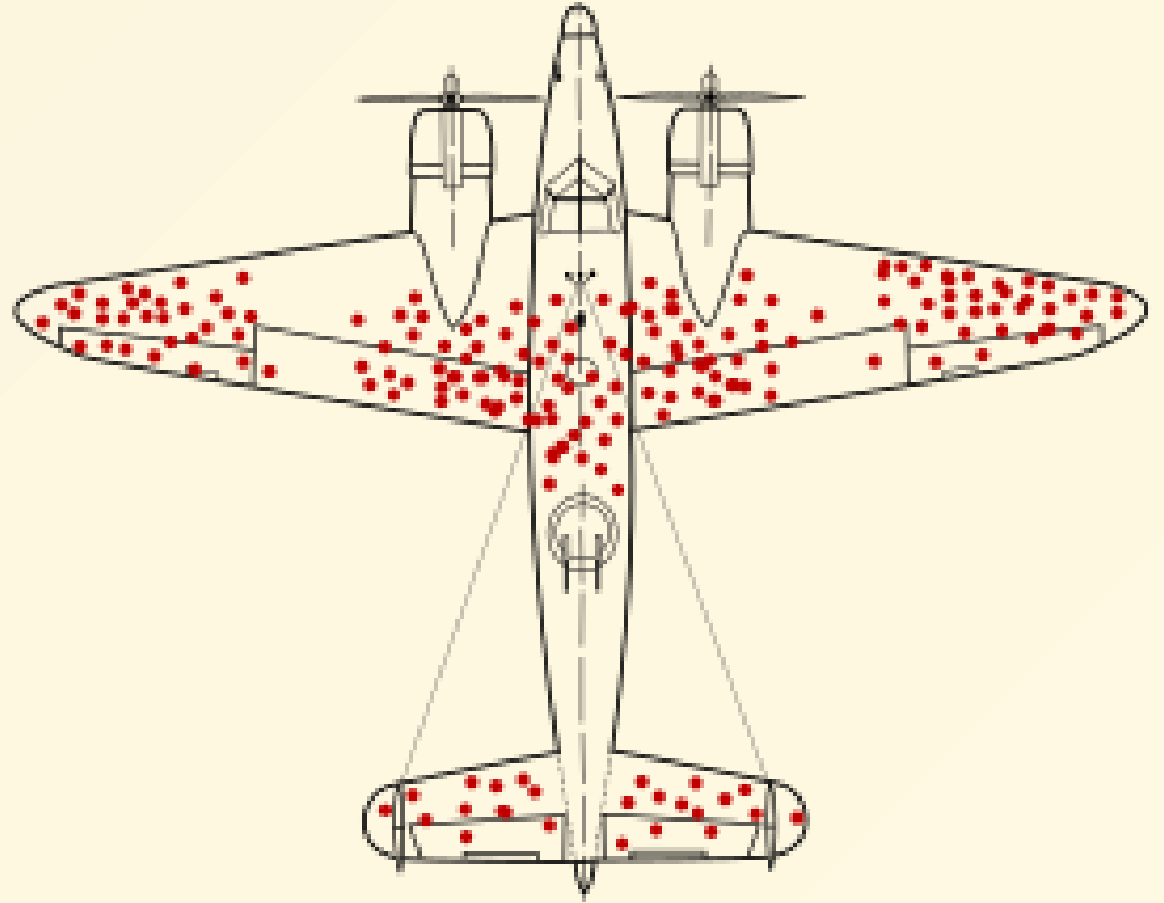
Qual è la numerosità del campione

- a) 277 
- b) 139
- c) 130
- d) Non è possibile desumerlo dalla tabella

Sikich, L. *et al.*, *Intranasal Oxytocin in Children and Adolescents with Autism Spectrum Disorder*, NEJM, 2021

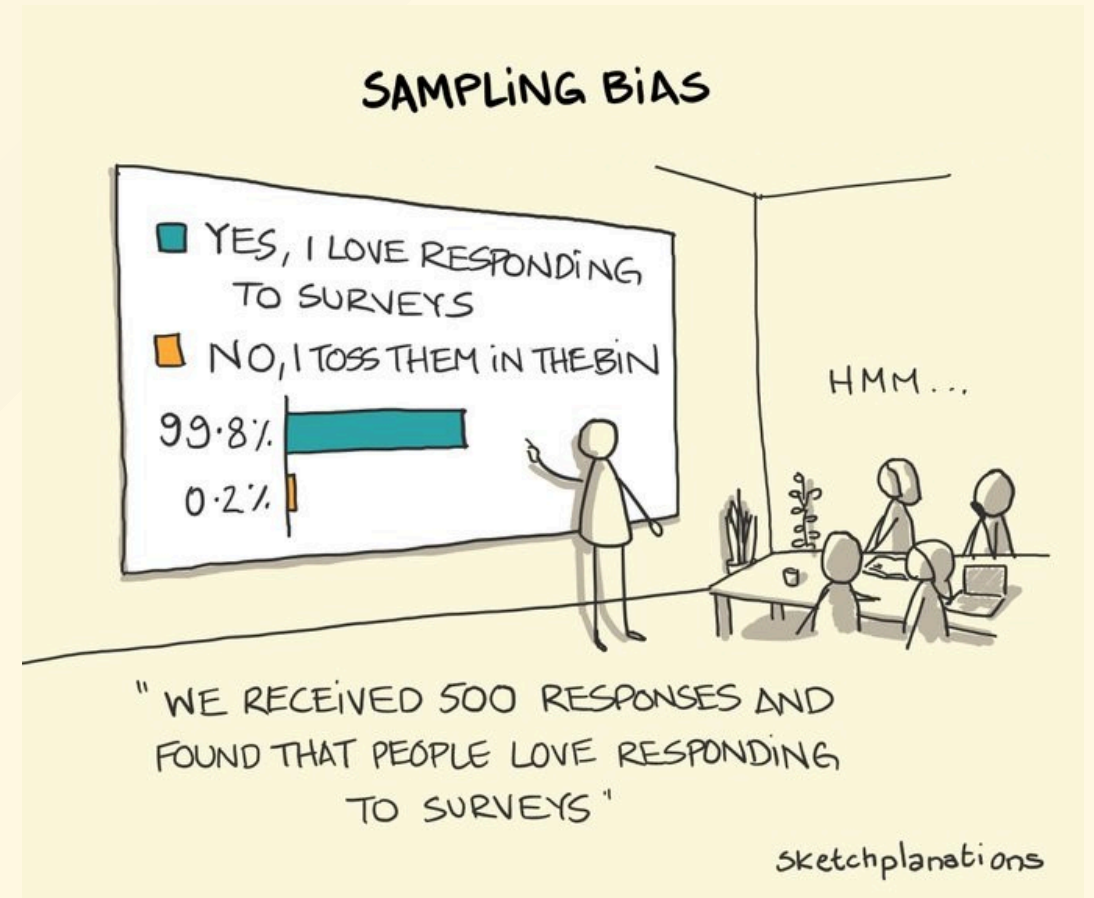
Bias nella selezione del campione

- Survivor bias



Bias nella selezione del campione

- Survivor bias
- Volunteer bias
- Lost to follow up bias
- ...



Esercizio #4

RESULTS

Of the 355 children and adolescents who underwent screening, 290 were enrolled. A total of 146 participants were assigned to the oxytocin group and 144 to the placebo group; 139 and 138 participants, respectively, completed both the baseline and at least one postbaseline ABC-mSW assessments and were included in the modified intention-to-treat analyses. The least-squares mean change from baseline in the ABC-mSW score (primary outcome) was -3.7 in the oxytocin group and -3.5 in the placebo group (least-squares mean difference, -0.2 ; 95% confidence interval, -1.5 to 1.0 ; $P=0.61$). Secondary outcomes generally did not differ between the trial groups. The incidence and severity of adverse events were similar in the two groups.



Lo studio soffre di qualche bias?

- a) No
- b) Survivor bias
- c) Volunterr bias
- d) Lost to follow up bias

02:00

Esercizio #4 -- Soluzione

RESULTS

Of the 355 children and adolescents who underwent screening, 290 were enrolled. A total of 146 participants were assigned to the oxytocin group and 144 to the placebo group; 139 and 138 participants, respectively, completed both the baseline and at least one postbaseline ABC-mSW assessments and were included in the modified intention-to-treat analyses. The least-squares mean change from baseline in the ABC-mSW score (primary outcome) was -3.7 in the oxytocin group and -3.5 in the placebo group (least-squares mean difference, -0.2 ; 95% confidence interval, -1.5 to 1.0 ; $P=0.61$). Secondary outcomes generally did not differ between the trial groups. The incidence and severity of adverse events were similar in the two groups.



Lo studio soffre di qualche bias?

- a) No
- b) Survivor bias
- c) Volunterr bias
- d) Lost to follow up bias



Cosa abbiamo imparato in questa lezione?

- La popolazione è l'insieme di tutti gli individui per cui vogliamo studiare un fenomeno ed è, teoricamente, infinita
- Il campione è un sotto insieme (rappresentativo?) della popolazione
- Anche con campioni rappresentativi (casuali) possono esserci errori e/o bias