Doğru Soruyu Sormak

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Koç Üniversitesi Tıp Fakültesi

Enfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Bölümü

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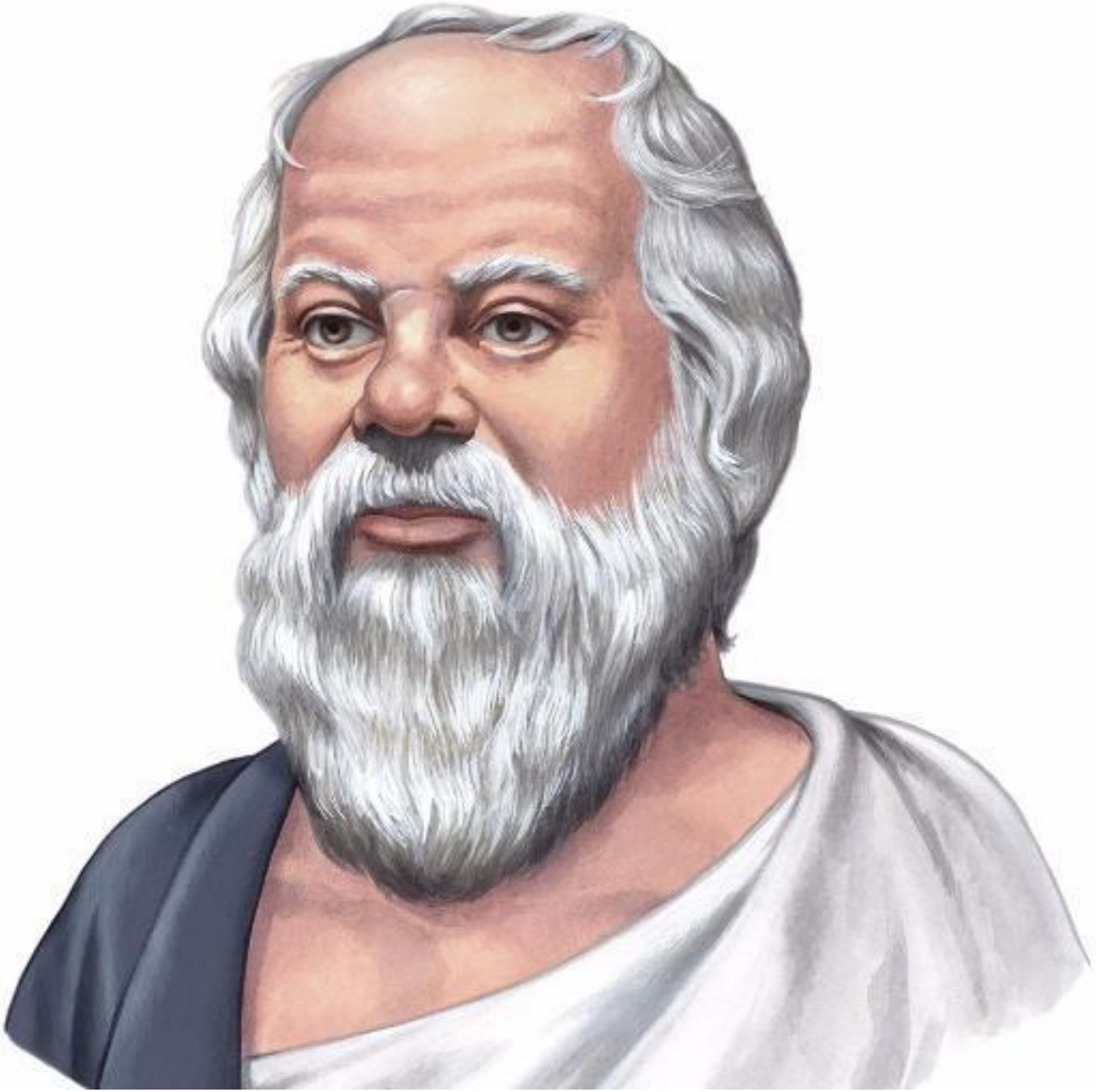
Beğenilen, takdir edilen yazılar ve kitapları neden beğeniriz?

- Kendimizi bulmak
  - Kendimizi bulmak nedir?
- Yeni bir soruya takılmak
- Çözüm bulmak
  - Tüm çözümleri bir kitapta/yazıda bulmak mümkün mü?
- Soru üretmek
- Büyük resmi görmek

Günlük Pratikte Hatalarımız

1. Bilinemezcilik
    1. Agnostisizm
2. Ağaca bakarken ormanı görememek
    1. Tek bir olguyla her şeyi açıklamaya kalkmak
3. Teori ve pratik bağını kuramamak
    1. Kendi pratiğini özgün saymak (Mandell hasta mı görmüş?)
    2. Rehberleri doğru anlamamak
4. Temel bilimlerden uzaklaşmak
    1. Klinik pratiğe kendini sınırlamak (essah mı?)
5. Confounding by indication
    1. Hastanın ciddiyetine göre karar vermek
6. Aynı anda iki doğru aramak
    1. Occam'ın usturası
7. Retrospektif düşünme: outcome bias
    1. Geçmişte yaşanan düşünce süreçlerini ve adımlarını atlamak
    2. Geride bıraktığın ihtimalleri bırakmak

Sok k



1. Netle
2. Varsa
3. Kanıt
4. Alter
5. Soru
6. Bura

6 dürüst yardımcım vardır:

Ne,
Neden,
Ne zaman,
Nasıl,
Nerede,
Kim.

Rudyard Kipling, 1865-1936

lex parsimoniae (the law of briefness)

William Ocham (14th cc)

Entia non sunt multiplicanda praeter necessitatem

More things should not be used than are necessary.

When there are many explanations for symptoms, the simplest diagnosis is the one to test first.

If a child has a runny nose, it probably has the common cold rather than a rare birth defect.

"When you hear hoof beats, think horses, not zebras".

Occam' ın Usturası

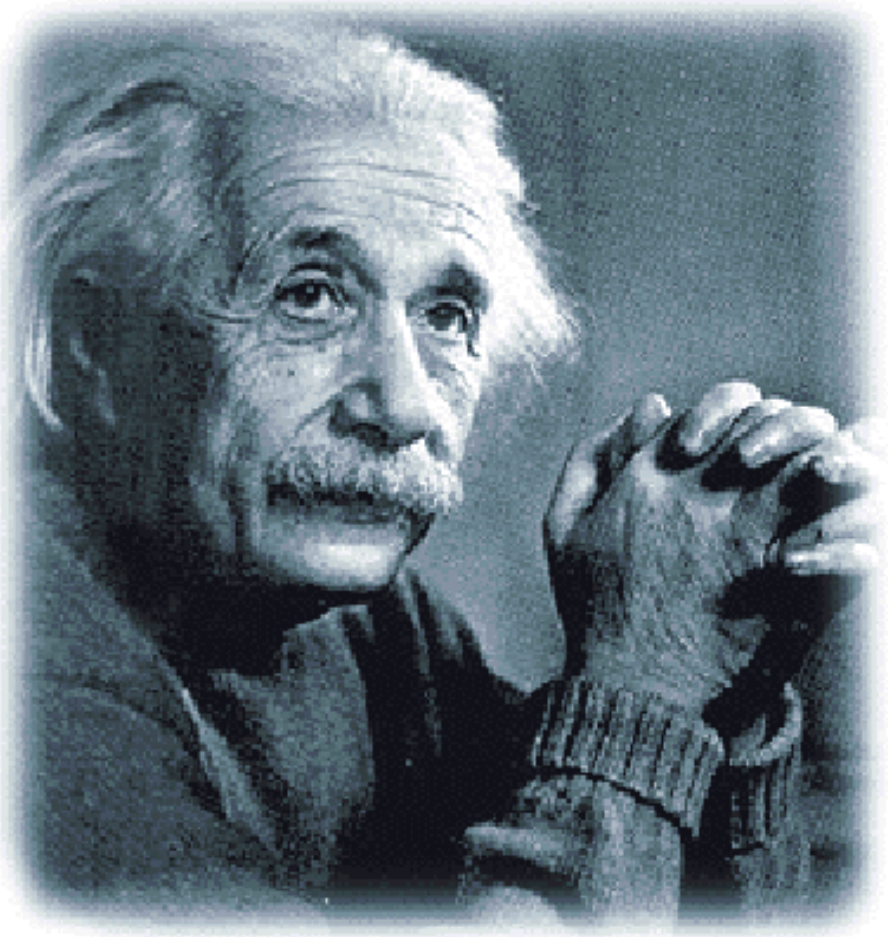
Occam: 14 yy, İngiliz felsefeci ve din bilimci

"Birşeyleri açıklamak için ortaya atılan varsayımlar, ihtiyacın ötesinde çoğaltılmamalıdır"

Taylor RB. The Clinician's Guide to Medical Writing Springer, 2005.

"Rakip varsayımlar arasında en doğru varsayım, en basit olanıdır"

Wynn CM, Wiggins AW. Yanlış Yönde Kuantum Sıçramalar. TÜBİTAK, 2005.



“Basite indirgeyin, kolayına kaçmayın…”

Basit ≠ Kolay

KISACA SÖYLEYİN Kİ OKUSUNLAR,
AÇIKLAYIN Kİ DEĞER VERSİNLER,RESMEDİN Kİ
HATIRLASINLAR VE HEPSİNDEN ÖNEMLİSİ,
DOĞRU ANLATIN Kİ

IŞIĞIYLA YÖN BULSUNLAR.

JOSEPH PULITZER

(10 NİSAN 1847 - 29 EKİM 1911)

“Veritas simplex oratio est”

Gerçeğin dili basittir

Bilimsel Yöntem Nedir?

Bilimsel Sorgulama Nedir?

Modus tolens'in Önemi

Modus ponens:

Eğer Sokrat bir insansa, Sokrat ölümlüdür.

Sokrat bir insandır

Bu nedenle (demek ki) Sokrat ölümlüdür.

Modus tolens

Eğer Sokrat tanrıysa, Sokrat ölümsüzdür.

Socrat ölümsüz değildir.

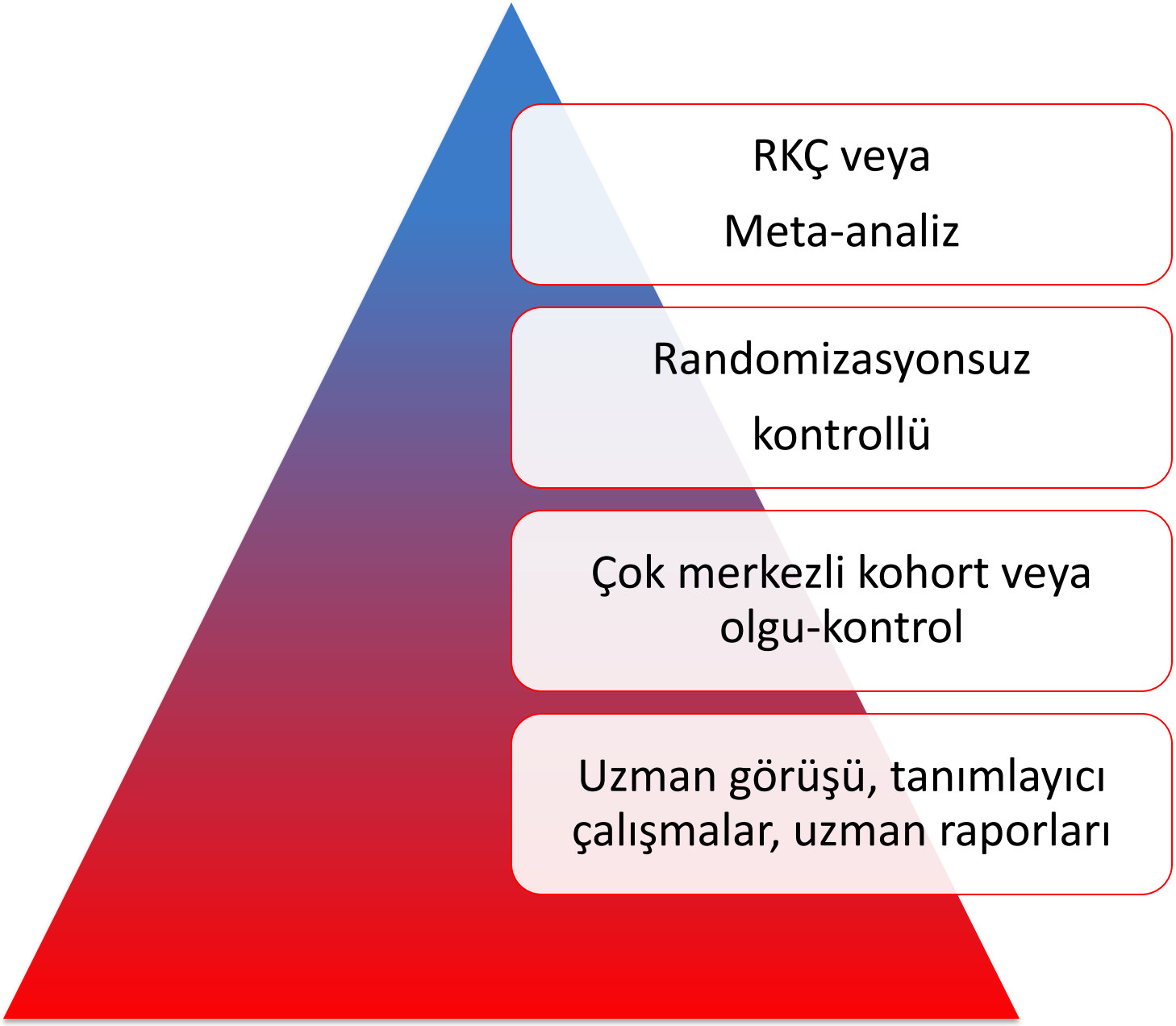
Bu nedenle (demek ki) Sokrat tanrı değildir.

Karl Popper's Modus tolens

Karl Popper: yanlışlama yaklaşımı Modus tolens'e dayanır.

Teori doğruysa çıkarım doğrudur.

Çıkarım yanlışsa teori yanlıştır.


RKÇ veya
Meta-analiz
Randomizasyonsuz
kontrollü
Çok merkezli kohort veya
olgu-kontrol
Uzman görüşü, tanımlayıcı
çalışmalar, uzman raporları

Soru Nasıl Ortaya Çıkar?

- Çözmek istediğimiz bir belirsizlik, bir sorun olmalı
- Çalışmada her şey bu soruyla ilgili olmalı
- Çalışma sorusu kendiliğinden görünmez
- İlham (inspiration) kaynakları:
- dersler, yazılar, kitaplar, toplantılar.
- En çok, tartışma
- Tüm bunlardan sonra yanıtlanabilir bir soru üretebilirsiniz

Asking the Right Question: Specifying Your Study Question

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Evid Based Spine Care J 2013;4:68–71.

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Table 1 Improving study question focus

Study question too broad	Study question somewhat more answerable	Study question with improved focus
What is the comparative effectiveness of laminoplasty versus laminectomy and fusion?	What is the comparative effectiveness of laminoplasty versus laminectomy and fusion for adults with cervical myelopathy?	What is the comparative effectiveness of laminoplasty versus laminectomy and fusion for adults with myelopathy due to spondylosis in the cervical spine?

Table 2 Example of a PICO (Patients, Intervention, Comparator, Outcomes) table for formulating a study question

	Inclusion	Exclusion
Patients What patient group do you want to include?	Symptomatic adults with cervical myelopathy due to spondylosis	• Patients under 18 years of age • Ossification of the posterior longitudinal ligament (OPLL) • Tumor • Trauma • Infection • Deformity
Intervention What surgical treatment, procedure, or implants are you interested in?	Cervical laminoplasty	
Comparison What is the comparison treatment?	Cervical laminectomy and fusion	
Outcomes What outcomes are you interested in (e.g., pain, function)?	• JOA recovery rate (primary outcome) • NDI • Neck or arm pain • SF-36 • Complications, including CSF leakage, dural tear, and C5 palsy	• Radiographic outcomes • Economic, cost-effectiveness

Table 3 Final study question

In symptomatic adults with cervical myelopathy due to spondylosis, does laminoplasty improve the severity of myelopathy (as measured by the JOA recovery rate) compared with laminectomy and fusion at 12 months? *or, more specifically* In symptomatic adults with cervical myelopathy due to spondylosis, does laminoplasty lead to a minimum 75% JOA recovery rate (from baseline to 12 months) more frequently than after laminectomy and fusion?

Chocolate Consumption, Cognitive Function, and Nobel Laureates

Messerli

N Engl J Med

2012

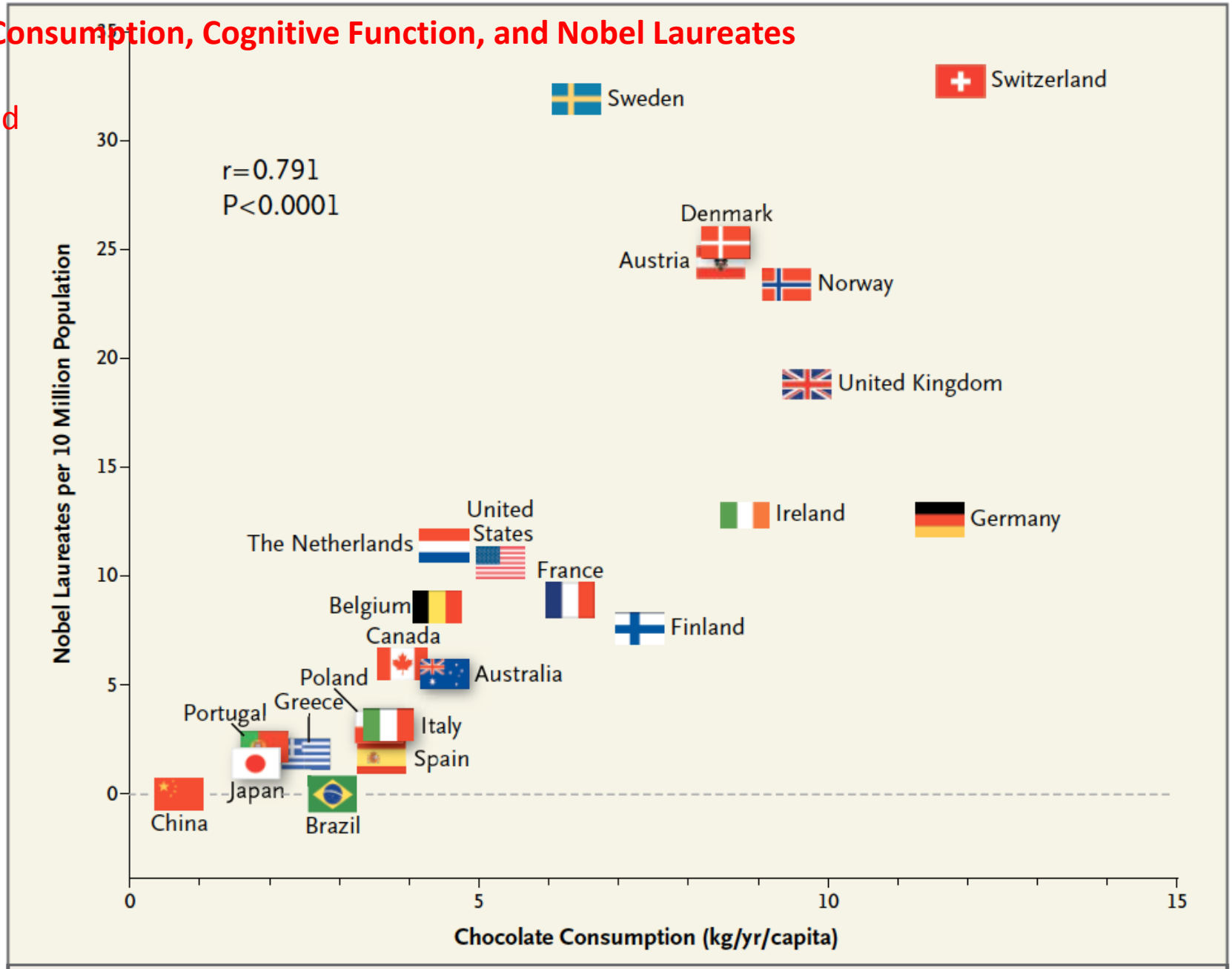


Figure 1. Correlation between Countries' Annual Per Capita Chocolate Consumption and the Number of Nobel Laureates per 10 Million Population.

4 POPULAR DIET COKE BELIEFS THAT ARE ACTUALLY BS

There are many myths, scaremongering stories and incorrect infographics filled with pseudoscience and BS about diet drinks. Time to use science and evidence to separate fact from fiction!

1. DIET COKE CAUSES CANCER

Despite what many scaremongering blogs will have you believe, there is no evidence that indicates any long-term health risks from drinking diet drinks.

Back in the 60's, there was a study that linked aspartame (the sweetener in Diet Coke) with brain tumours but more recent evidence has proven that this isn't the case. Several recent, large-scale studies have concluded that aspartame is safe as a sweetener and that there is no link between it and any form of cancer.

2. DIET COKE CAUSES WEIGHT GAIN

A drink that contains zero calories cannot cause weight gain , nor does it push the body into 'fat-storage mode'. There are ZERO studies that show drinking diet drinks can directly increase body fat levels.

There is some research that has shown people who are overweight drink more sugar-free drinks than people who are a healthy weight. However, these studies have also explained that the overweight people - who were drinking the diet drinks - had a much higher calorie intake than those who didn't.

What's more, people who generally have poor diets may also be more likely to drink diet drinks to offset the high amount of calories consumed by making poor food choices.

3. DIET COKE TRICKS YOUR BRAIN

Artificial sweeteners don't trick your brain into thinking you're eating sugar, nor do they mimic cocaine! Some rumours are that Diet Coke causes an insulin spike which results in fat-storage, but if you look at the evidence - this doesn't happen in healthy humans or even in diabetic patients.

4. DIET COKE CLEANS COINS SO IT'S TOXIC

Fizzy drinks do contain carbonic acid which make them good stain removers but fizzy soda water does exactly the same thing! There isn't anything mythical or chemical about a Diet Coke that makes it a good cleaner, it's simply the carbonic acid.

People have been drinking fizzy water for years with no side effects. The carbonation might not be great for tooth enamel but there is zero evidence that shows moderate consumption will rot your insides.

TAKEHOME MESSAGE

Diet Coke isn't 'healthy' but the evidence shows that there isn't really anything particularly 'unhealthy' about the occasional can of it either. If weight loss is the goal then swapping from a normal fizzy drink to a diet drink is going to be beneficial as it would reduce sugar intake and cut overall calories.

**This graphic has not been supported, approved or sponsored by Coca Cola, a sweetener lobby group or big pharma' etc...*

FOOD FOR FITNESS

FOR THE FULL ARTICLE WITH REFERENCES VISIT: FOODFORFITNESS.CO.UK/DIETCOKE

Open access, freely available online

Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

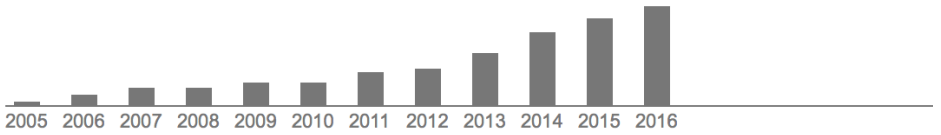
Summary

There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater financial and other interest and prejudice; and when more teams are involved in a scientific field in chase of statistical significance. Simulations show that for most study designs and settings, it is more likely for a research claim to be false than true. Moreover, for many current scientific fields, claimed research findings may often be simply accurate measures of the prevailing bias. In this essay, I discuss the implications of these problems for the conduct and interpretation of research.

ohn P. A. Ioannidis

Why most published research findings are false

Yazarlar	John PA Ioannidis
Yayın tarihi	2005/8/30
Dergi	PLoS Med
Cilt	2
Sayı	8
Sayfalar	e124
Yayıncı	Public Library of Science
Açıklama	Summary There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of ...
Toplam alıntı sayısı	Alıntılanma sayısı: 4245



Google Akademik: Why most published research findings are false
JPA Ioannidis - PLoS Med, 2005

Published research findings are sometimes refuted by subsequent

predictors, risk factors, or associations. "Negative" research is also very useful. "Negative" is actually a misnomer, and the misinterpretation is widespread. However, here we will target

have called the false positive report probability [10]. According to the 2 × 2 table, one gets PPV = $(1 - \beta)R/(R - \beta R + \alpha)$. A research finding is thus

Today's Random Medical News

from the New England Journal of Panic-Inducing Gobbledygook

JIM BORGMAN

Koch's postulates of infectious disease and *Helicobacter pylori*

1. 'Bacteria' should be found in all people with disease
2. 'Bacteria' should be isolated from lesions of infected person
3. Pure culture, inoculated into susceptible host should produce symptoms of disease
4. Same 'bacteria' should be re-isolated from the intentional infected individual.

Testing of Postulates 3 and 4 by

Marshall BJ, et. al. Attempt tofulfill Koch's Postulates for pyloric Campylobacter. Med J Aust. 1985 Apr 15; 142 (8): 436-9.

Çalışma Tasarımları

Etken - Sonuç İlişkisi Saptanmasında Temel Hücre

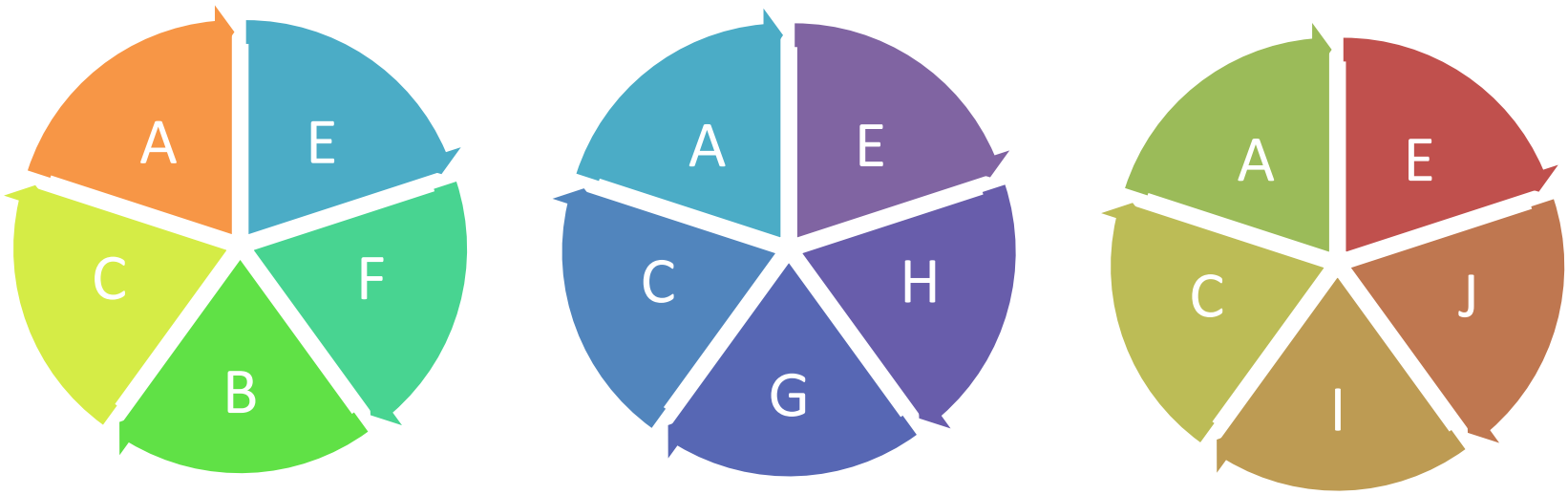
Dört gözlü tablo=2x2 tablosu

	Sonuç VAR	Sonuç YOK
Etken VAR	a	b
Etken YOK	c	d

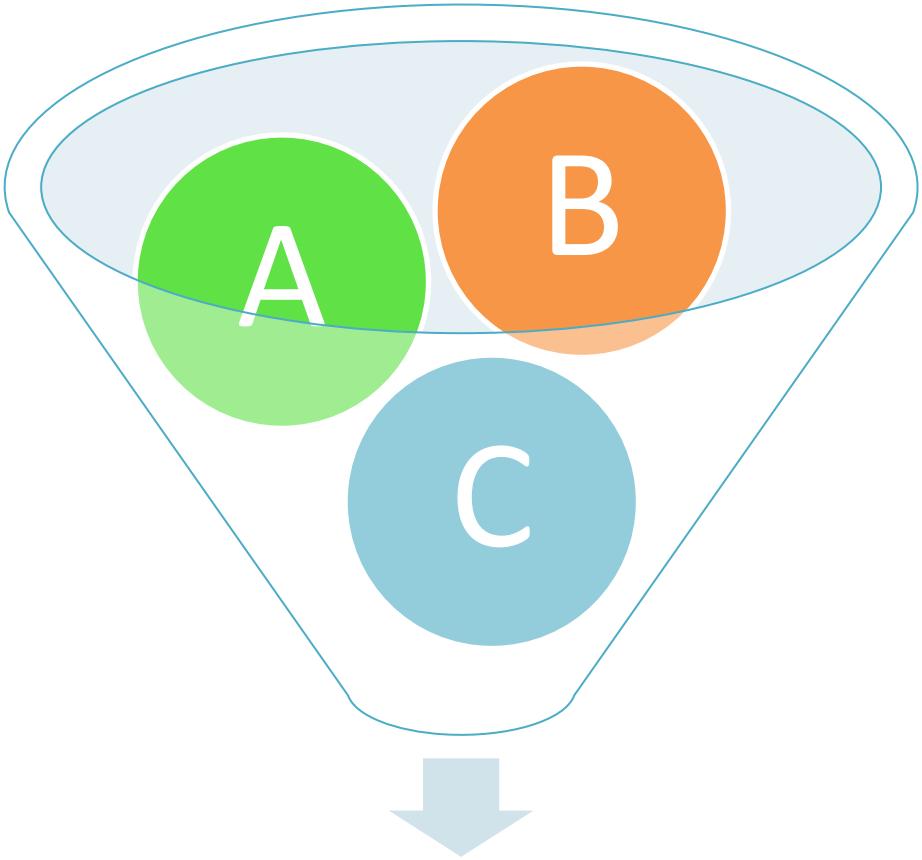
Sonuçların Yorumlanması

- İlişki var mı?
- İstatistiksel olarak anlamlı mı?
- İlişkinin yönü nasıl?
- Neden sonuç ilişkisi kurulabiliyor mu?
- Sonuçlar diğer çalışmalarla tutarlı mı?

The Causal Pie Model

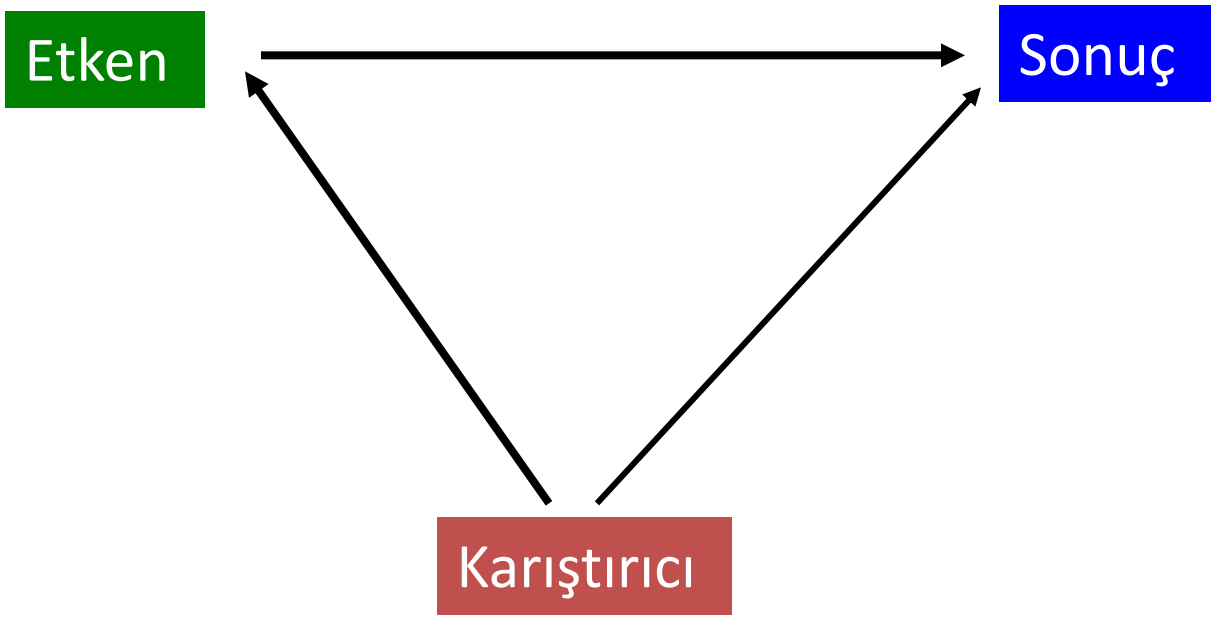


Causal Relation between Independent and dependent variables

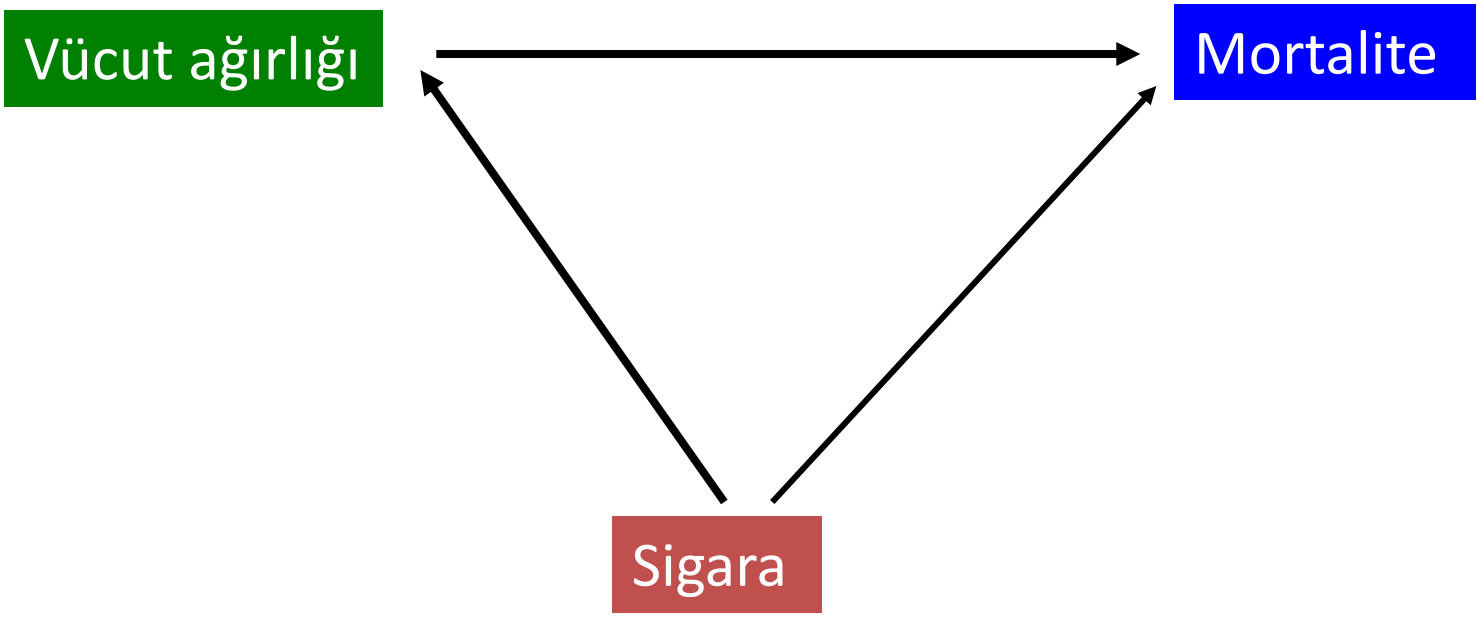


Karıştırıcı Etken

- Baktığınız etkenle sonuç arasında, başka bir etkenden dolayı bir ilişki varmış gibi sonuç çıkması



Karıştırıcı Etken



Çalışma Evreleri

1. Ön hazırlık, hipotez kurma
2. Çalışma tasarımı
3. Veri toplama
4. Verilerin değerlendirilmesi ve analiz
5. Yazım

Summary:
Objectives of the Course Program

1. Bias
2. Confounder

} Study Design
Data collection
Epidemiology

3. Chance → Analysis: Statistical methods