Epidemiological perspectives of nutrition

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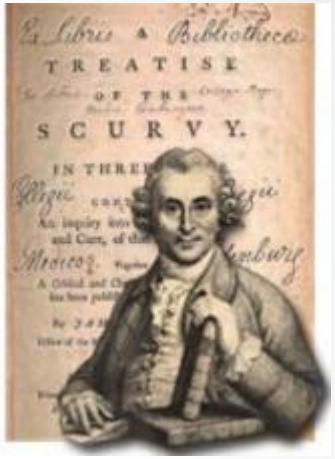
Some history

First ever clinical experiment (1747)



Example 2: 1914

CURE FOR PELEGRA

PUBLIC HEALTH SERVICE HAS FOUND CAUSE OF DISEASE

STARTS BY WRONG DIET

Dr. Goldberger Experiments Upon Convicts Giving Them the Disease by Improper Feeding and Curing Them by Using a Balanced Diet.—

Research

What is research in your opinion?

Research

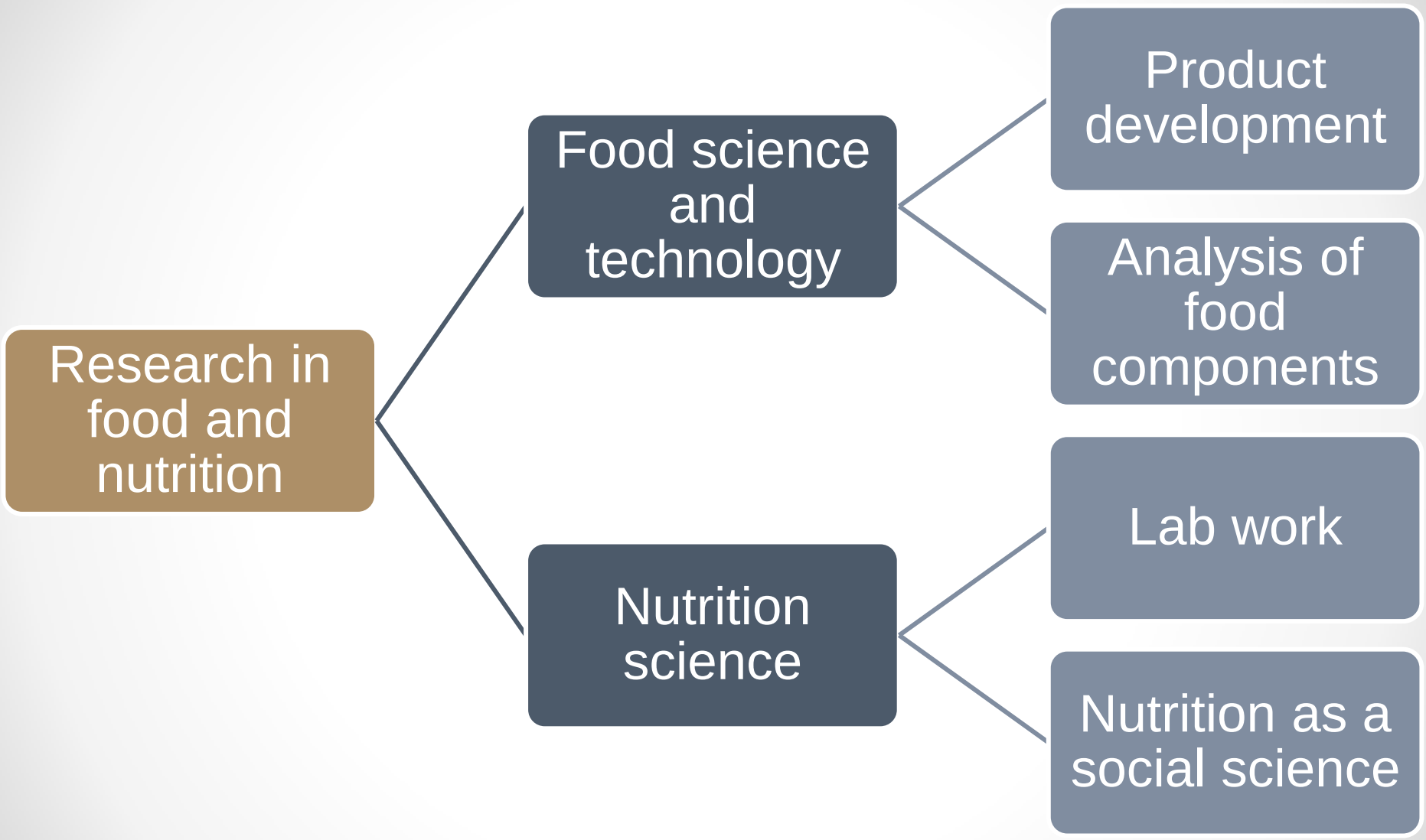
Is this just an academic degree requirement??

Or rather **should it** be???

I keep six honest serving men; they taught me all I know

Their names are

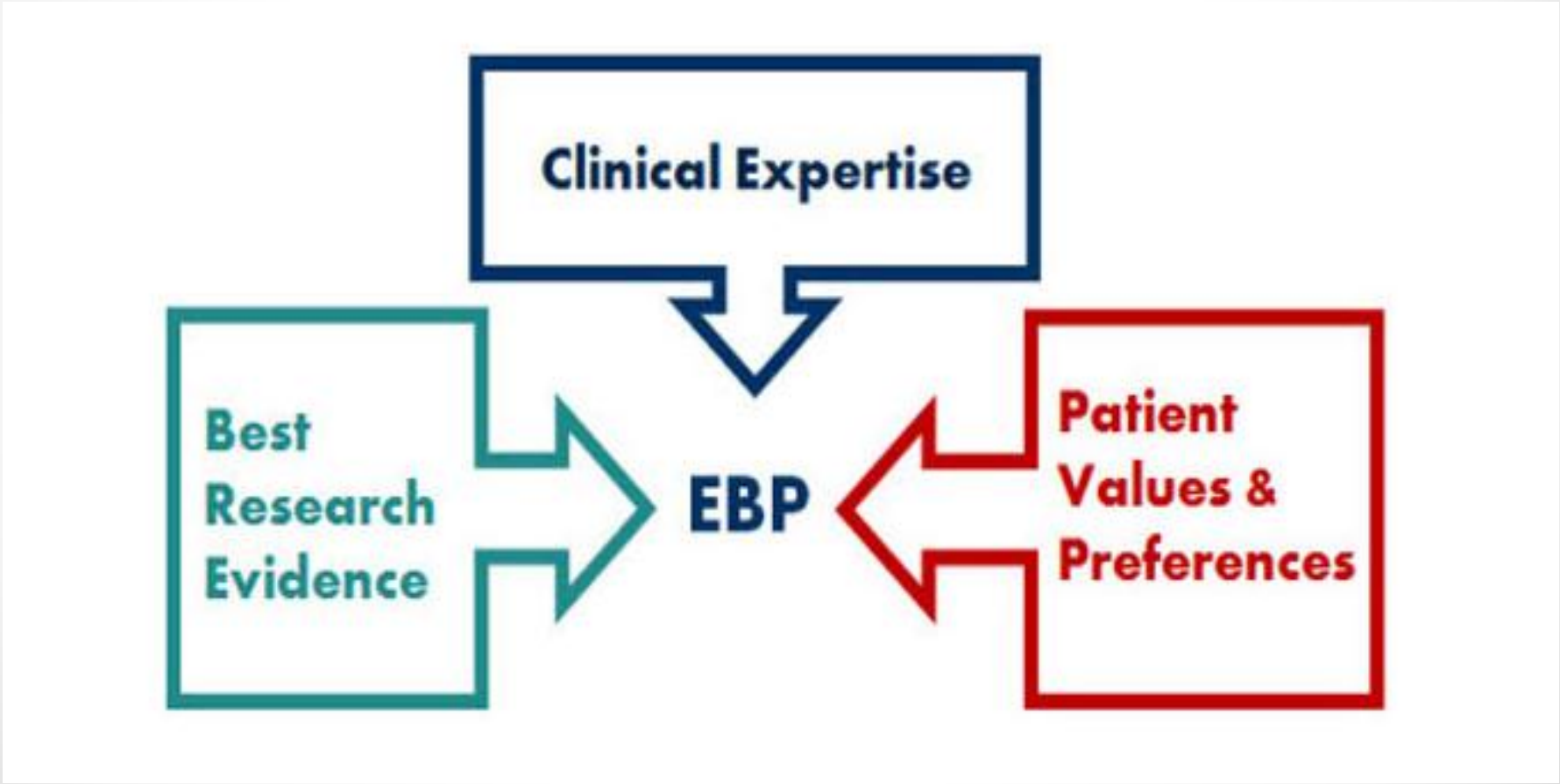
what, why, when, how, where, who


Research in food and nutrition
Food science and technology
Nutrition science
Product development
Analysis of food components
Lab work
Nutrition as a social science

The ultimate aim of food and nutrition research

To improve the quality of human life

Evidence Based Practice (EBP)



Practice-based **E**vidence in **N**utrition

- Making informed decisions in care of patients

Nutritional epidemiology

Definition of Epidemiology

Epi- demos- logos
Upon- People- Study

- Study of the **occurrence, distribution, and determinants** of health-related **diseases or events**
- in specified **populations**
- and the application of this knowledge to **control** the health problem

Nutritional epidemiology

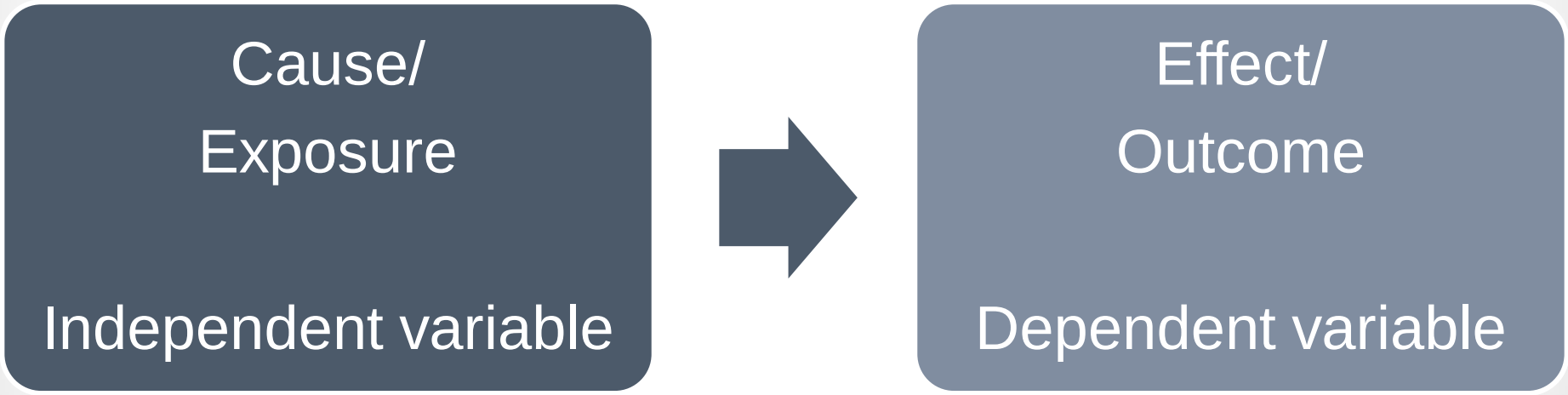
The study of nutritional determinants of disease in human populations

Aim of epidemiology

To establish causation (cause-effect link)

Ideally……..

one on one relationship

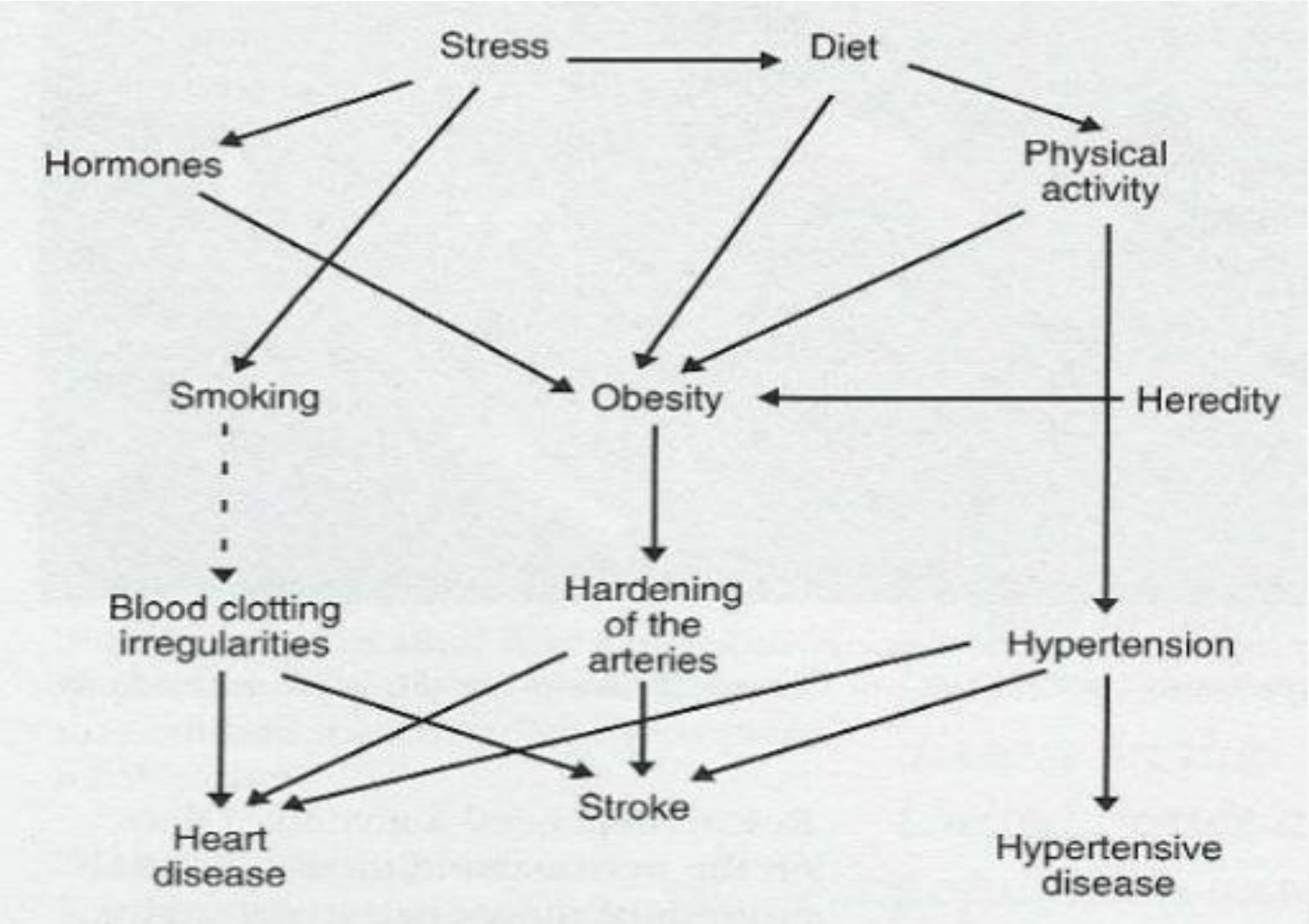


Actually…..

Multifactorial causes

Web of causation

Example……


Stress
Diet
Hormones
Physical activity
Smoking
Obesity
Heredity
Blood clotting irregularities
Hardening of the arteries
Hypertension
Stroke
Heart disease
Hypertensive disease

Association vs. causation

Association does not imply causation

Classification of epidemiological study designs

Study designs in epidemiology

Observational

- Descriptive
  - Case report
  - Case series
  - Case study
  - Cross sectional
- Analytical
  - Cross sectional
  - Cohort
  - Case control

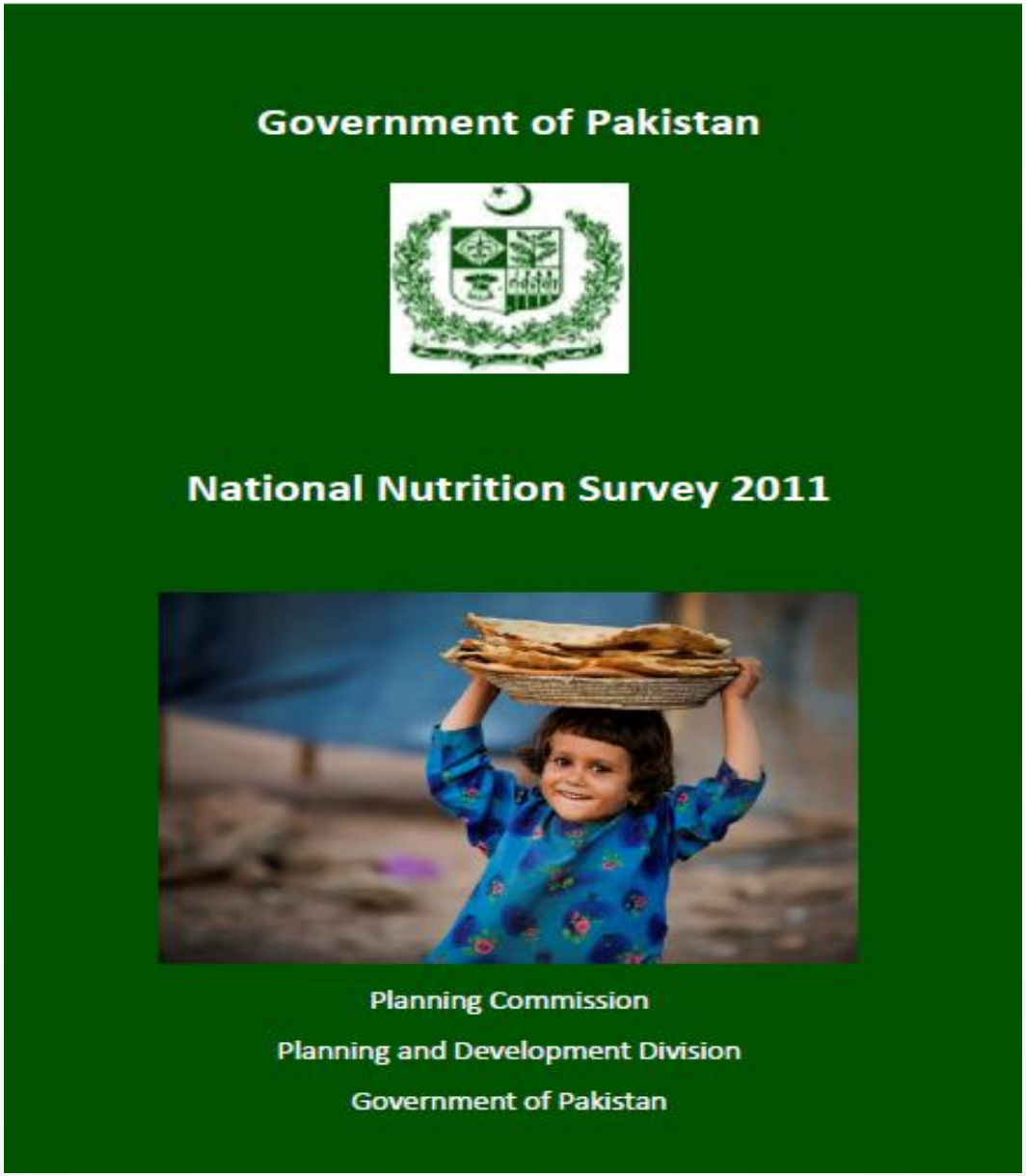
Interventional

- True experiment
  - Randomized controlled trials
- Quasi Experiment

Cross sectional

Observational studies-1

Example- cross sectional study



Case control

Observational studies -2

Example

Ashaba *et al. BMC Public Health* (2015) 15:1303
DOI 10.1186/s12889-015-2644-y

BMC Public Health

RESEARCH ARTICLE Open Access

Maternal depression and malnutrition in children in southwest Uganda: a case control study

Scholastic Ashaba[1*], Godfrey Zari Rukundo[1], Florence Beinempaka[2], Moses Ntaro[3] and John C. LeBlanc[4]

Abstract

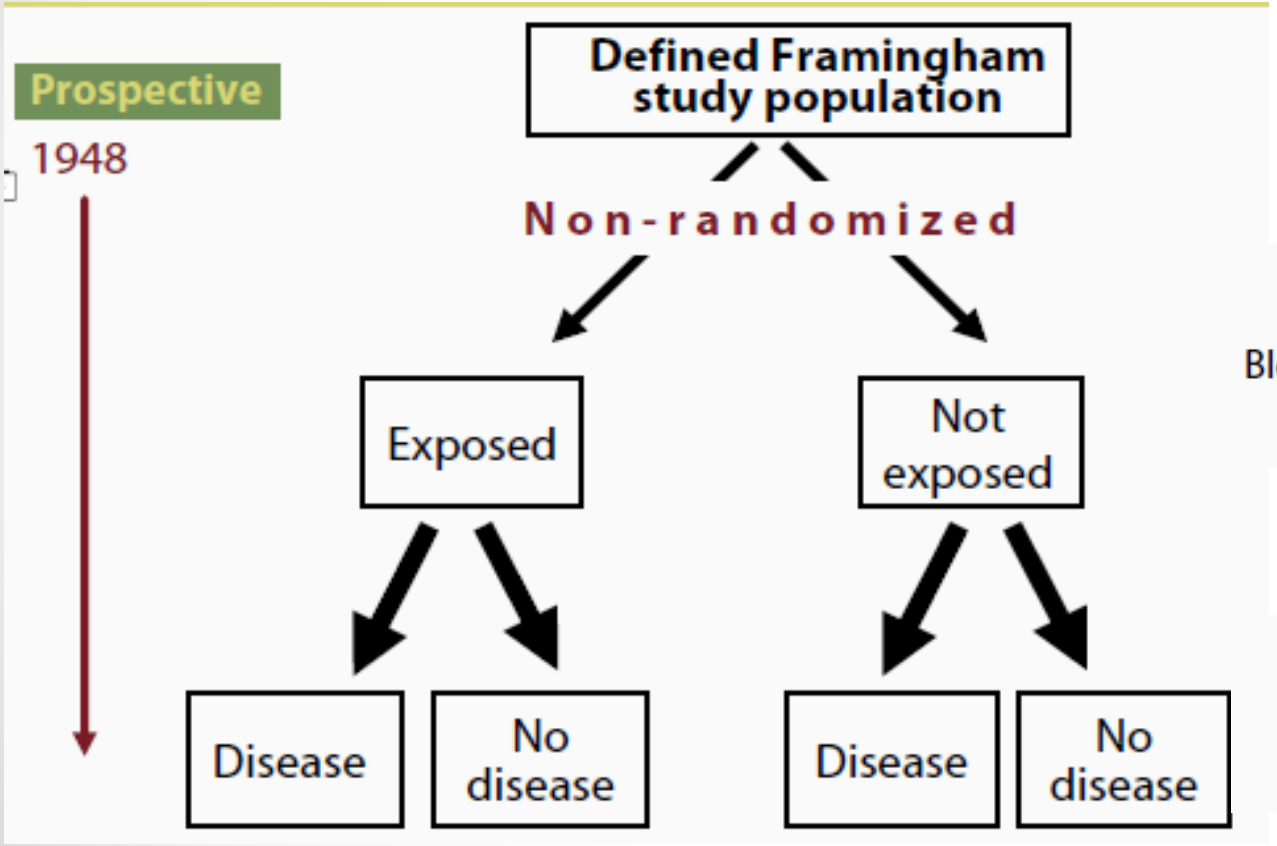
Background: Malnutrition remains one of the most significant child health problems in developing countries with an estimated 53 % of child deaths per year attributed to being underweight. The 2011 Uganda Demographic and Health Survey (UDHS) showed that 38 % of the children were stunted and 16 % were underweight. While dietary and environmental factors are known major contributors to children's nutritional status, maternal depression may also contribute since it disrupts the mothers' ability to cope with demands of childcare. This study aimed to determine the association between maternal depression and malnutrition in children aged one to 5 years in southwest Uganda.

Methods: The study was undertaken between October and December 2014 on children aged one to 5 admitted to the Mbarara regional referral hospital. Cases were malnourished children and controls were children with other chronic conditions but normal nutritional status admitted to the same hospital. Children's ages were recorded, weight and height taken and converted into height for age, weight for height and weight for age and malnutrition was determined based on WHO child growth standards. Mothers of both groups of children were assessed for depression using the depression module of the Mini International Neuropsychiatric Interview (MINI). Participants provided informed consent prior to enrollment. The study was approved by Mbarara University of Science and Technology Research Ethics Committee and funded by MicroResearch.

Cohort study

Observational studies -3

Framingham Heart Study (1948-present)



Exposures

Blood pressure, smoking, body weight, diabetes, exercise, etc.

Multiple Outcomes

Coronary heart disease, stroke, congestive heart failure, peripheral arterial disease

Local example

Saeed *et al. Nutrition Journal* (2016) 15:64
DOI 10.1186/s12937-016-0184-7

Nutrition Journal

RESEARCH Open Access

Effect of antenatal depression on maternal dietary intake and neonatal outcome: a prospective cohort

Ayesha Saeed[1,2*], Tahira Raana[3], Amina Muhammad Saeed[4] and Ayesha Humayun[5,6]

Abstract

Background: In Pakistan, incidence of antenatal depression ranges from 18 to 80 %, which goes undiagnosed, resulting in maternal and neonatal implications. The current study aimed to examine the association of antenatal depression with maternal dietary intake and neonatal outcome.

Methods: A hospital-based, prospective cohort study was conducted on 94 middle class antenatal attendees coming to a tertiary care hospital in Lahore, Pakistan at the beginning of second trimester. Participants fulfilling eligibility were enrolled consecutively after taking written informed consent. Exposure group was identified by Edinburgh Postnatal Depression Scale (EPDS) and cohort members were followed till after delivery. Maternal dietary intake was assessed by 24-h Recall and Food Frequency Checklist, while neonatal outcome was identified through patient files before discharge. Data on potential confounders was collected. Loss to follow up was 13 % (82/94). Data was collected from April-September 2013. Results for 82 participants were analyzed using SPSS version 21.

Experiment

Interventional study

Example

The American Journal of Clinical Nutrition

Effects of interpretive nutrition labels on consumer food purchases: the Starlight randomized controlled trial[1,2]

Cliona Ni Mhurchu,[3] Ekaterina Volkova,[3] Yannan Jiang,[3] Helen Eyles,[3] Jo Michie,[3] Bruce Neal,[4,5] Tony Blakely,[6] Boyd Swinburn,[7] and Mike Rayner[8]*

[3]National Institute for Health Innovation, University of Auckland, Auckland, New Zealand; [4]The George Institute for Global Health and Charles Perkins Center, University of Sydney, Sydney, Australia; [5]Division of Epidemiology and Biostatistics, Imperial College London, London, United Kingdom; [6]Department of Public Health, University of Otago Wellington, Wellington, New Zealand; [7]Epidemiology and Biostatistics, University of Auckland, Auckland, New Zealand; and [8]Nuffield Department of Population Health, University of Oxford, Oxford, United Kingdom

ABSTRACT

Background: Nutrition labeling is a prominent policy to promote healthy eating.

Objective: We aimed to evaluate the effects of 2 interpretive nutrition labels compared with a noninterpretive label on consumer food purchases.

Design: In this parallel-group randomized controlled trial, we enrolled household shoppers across New Zealand who owned smartphones and were aged ≥18 y. Eligible participants were randomly assigned (1:1:1) to receive either traffic light labels (TLLs), Health Star Rating labels (HSRs), or a control [nutrition information panel (NIP)]. Smartphone technology allowed participants to scan barcodes of packaged foods and to receive allocated labels on their smartphone screens. The primary outcome was the mean healthiness of all packaged food purchases over the 4-wk intervention period, which was measured by using the Food Standards Australia New Zealand Nutrient Profiling Scoring Criterion (NPSC).

Results: Between October 2014 and November 2015, 1357 eligible shoppers were randomly assigned to TLL (n = 459), HSR (n = 443), or NIP (n = 455) labels. Overall difference in the mean transformed NPSC score for the TLL group compared with the

Keywords: behavior, diet, labeling, nutrient profile, nutrition, randomized controlled trial

INTRODUCTION

An unhealthy diet is a leading preventable risk factor for poor health (1), and improving diets is a priority for global action (2). Nutrition labeling is a prominent policy tool to promote healthy eating (3). The display of some form of nutrition information on prepackaged foods is mandatory in most high-income countries (4). However, consumers have reported difficulty in understanding quantitative (nutrient-list) information, and generally have preferred labels that interpret the nutrition content (with the use of graphics, symbols, or colors) (5). Interpretive nutrition labels provide simple at-a-glance information that is easy for all consumers irrespective of ethnicity or socioeconomic position (6) to understand and act on.

One of the best-known interpretive nutrition-labeling schemes

Example

J Acad Nutr Diet. 2016 Aug;116(8):1285-94. doi: 10.1016/j.jand.2015.12.016. Epub 2016 Feb 6.

Adding a Social Marketing Campaign to a School-Based Nutrition Education Program Improves Children's Dietary Intake: A Quasi-Experimental Study.

Blitstein JL, Cates SC, Hersey J, Montgomery D, Shelley M, Hradek C, Kosa K, Bell L, Long V, Williams PA, Olson S, Singh A.

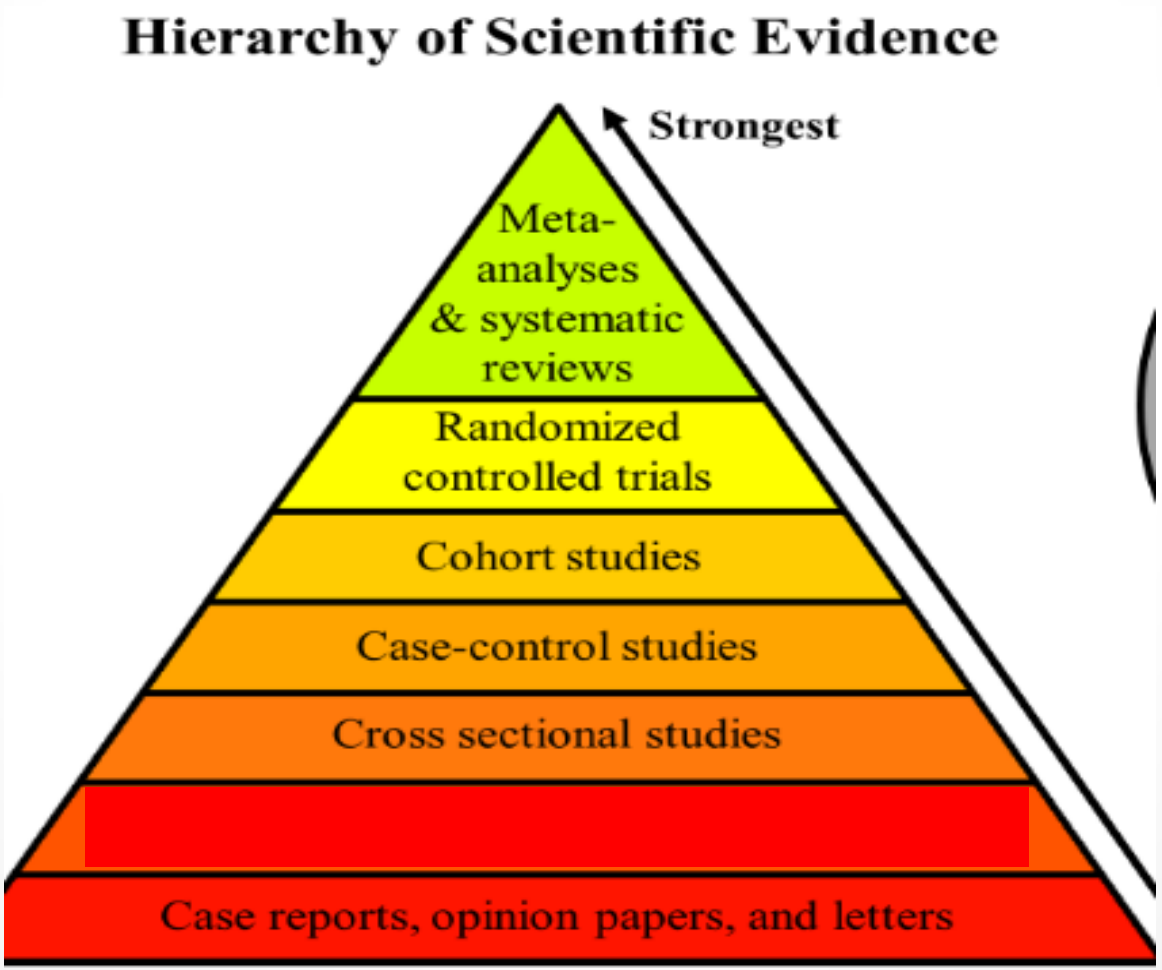
Abstract

BACKGROUND: Evidence supports the use of social marketing campaigns to improve nutrition knowledge and reinforce the effects of nutrition education programs. However, the additional effects of parent-focused social marketing with nutrition education have received little attention.

OBJECTIVE: Our aim was to assess the impact of the Iowa Nutrition Network's school-based nutrition education program (Building and Strengthening Iowa Community Support for Nutrition and Physical Activity [BASICS]) and the benefits of adding a multichannel social marketing intervention (BASICS Plus) to increase parent-directed communication.

DESIGN AND INTERVENTION: A quasi-experimental design with three study conditions compared a school-based nutrition education program (BASICS) with a school-based and social marketing intervention (BASICS Plus) and a no-treatment comparison group.

Are all researches equal?



Thank you