Maternal Obesity and Gestational Diabetes:

Protocol for Systematic Review

Dr. Maria Regina Torloni, Brazil

WHO Scholarship

Training Course in Reproductive Health Research
WHO 2007

Supervisors:
Dr. Ana Pilar Betrán
Dr. A.Metin Gulmezoglu

Department of Reproductive Health and Research, WHO, Geneva

Obesity: Definition

BMI (Body Mass Index) = Kg / m^2

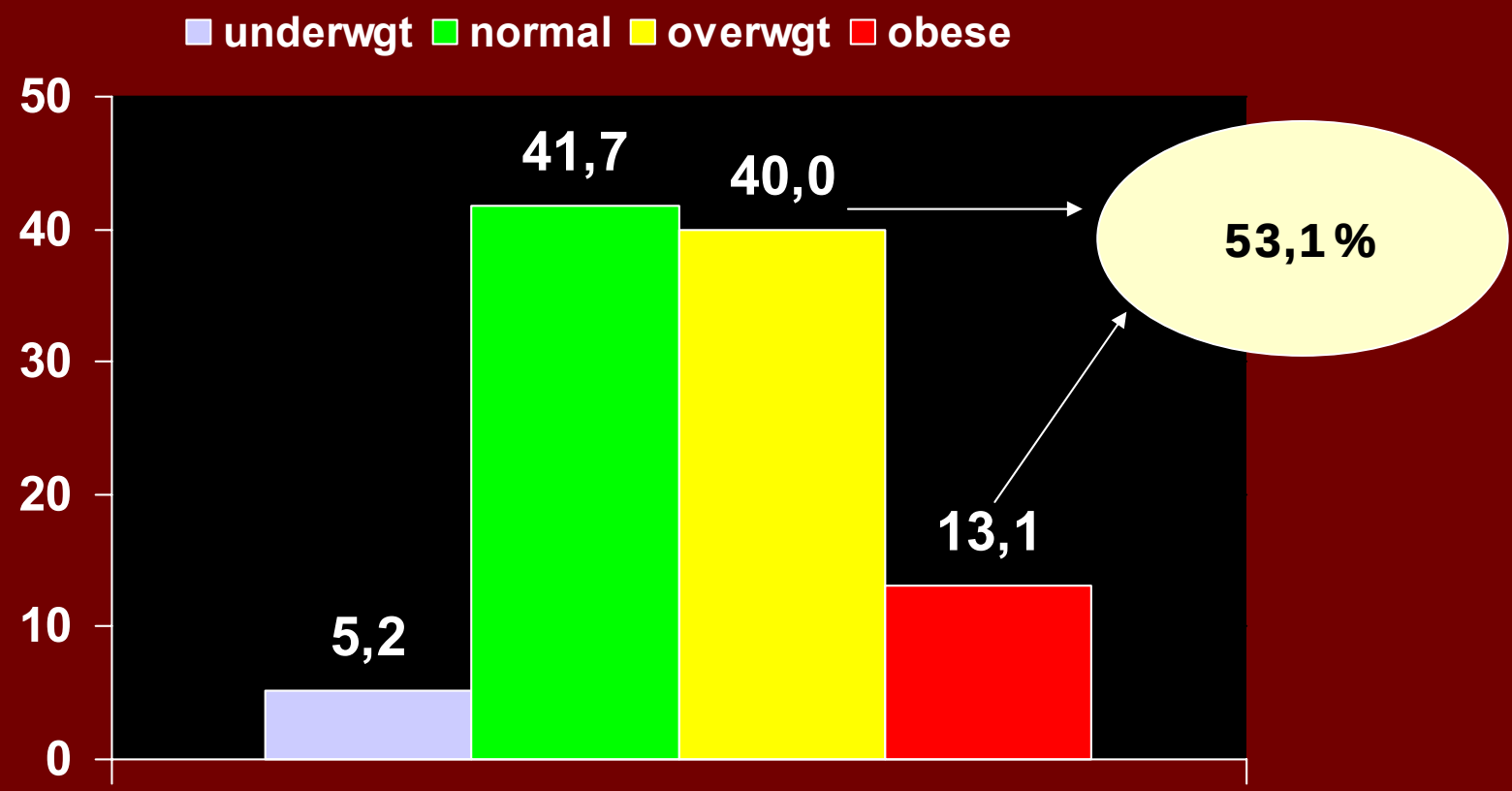
- **< 18.5 = underweight**
- **18.5-24.9 = normal**
- **25-29.9 = overweight**
- **30 or + = obese**

WHO

Obesity in the world

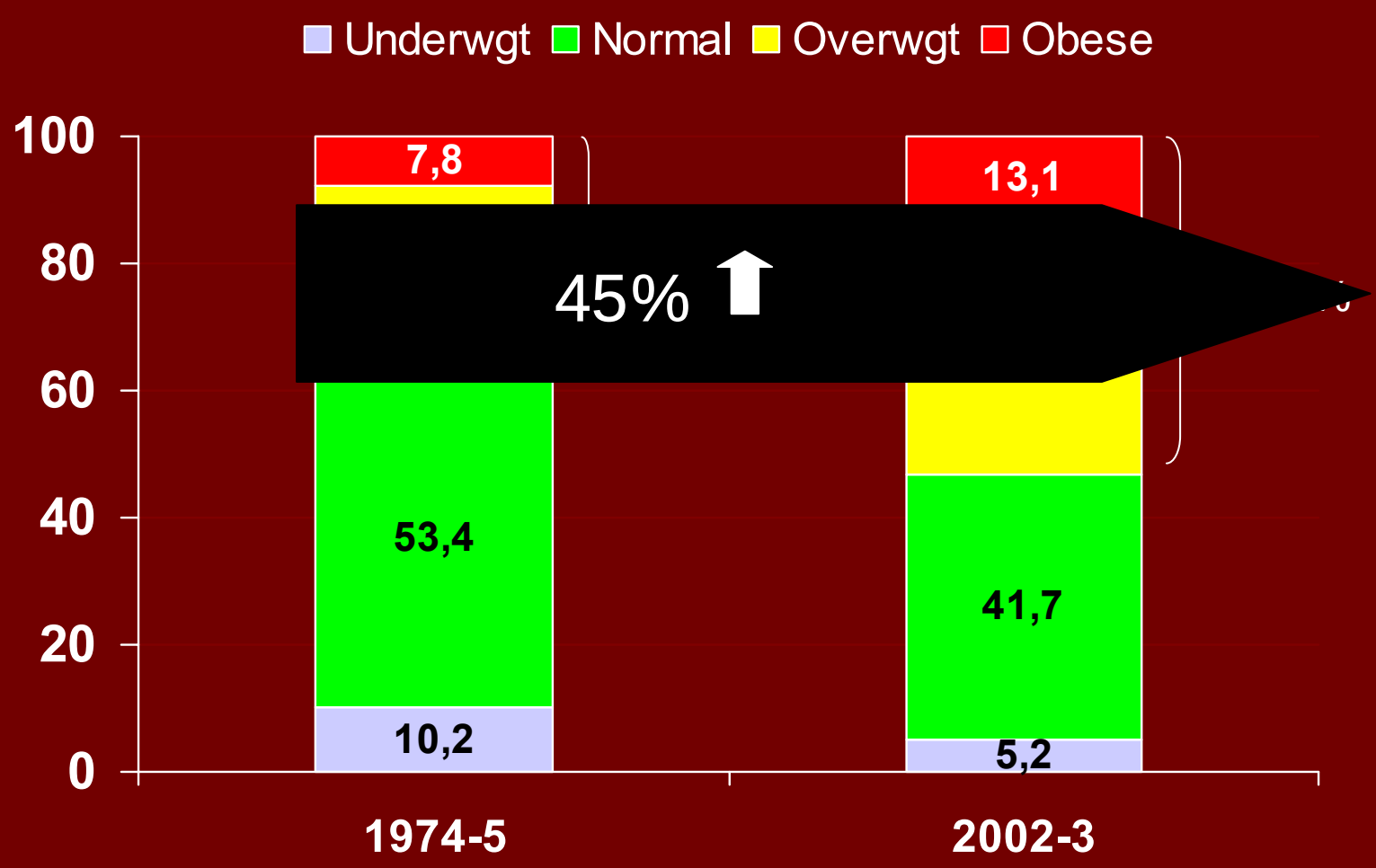
- In 2005, WHO: there were at least 400 million obese adults in the world.
- In 2000, 27% of all American adults were obese:
  - compared to data from 1980: 75% increase
- In the last 20 years, prevalence of obesity:
  - ↑ ↑ in most developed countries
  - ↑ also in many developing nations

BMI Brazilian population: females >20 yrs



Census by the National Bureau of Statistics (IBGE) ***2002-2003***

Female obesity in Brazil over time



Brazilian Census

Pre-pregnancy Obesity and Reproductive Health

↑ Risk for adverse perinatal outcomes:

- miscarriage
- malformations
- macrosomia
- birth injuries
- perinatal death

↑ Risk for adverse maternal outcomes:

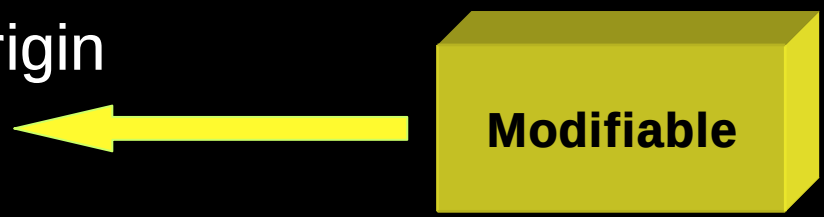
- pre-eclampsia
- C-section
- anesthesia problems
- hemorrhage
- puerperal infection
- gestational diabetes

Gestational Diabetes (GDM)

- “Any degree of glucose intolerance with onset or first recognition during pregnancy “. (ADA)

- Prevalence: 1-14%

- Risk factors:
  - age
  - ethnic origin
  - obesity



Impact of GDM

- pre-eclampsia
- macrosomia
- operative delivery
- neonatal morbidity
- perinatal death
- childhood obesity
- type 2 DM

RISK

Casey et al. Obstet Gynecol 1997

Schmidt et al . Diabetes Care 2001

Why is this study important?

- cohorts and case-control studies:
  - association between obesity and GDM, but
  - ↑ risk for GDM is variable
- no systematic review on specific risk increase of GDM due to obesity

Justification for the study

Why is it important to QUANTIFY the relation between pre-pregnancy maternal BMI and the the risk of GDM?

- better prediction of risk for individual patient (BMI)
- improve clinical surveillance during pregnancy
- pre-pregnancy counseling of obese young women:
  - ↓ weight → ↓ risk GDM → ↓ associated complications

Objectives

Objectives:

- To confirm the association between pre-pregnancy maternal obesity and increased risk of GDM.
- To quantify the degree of change in the risk for GDM according to increase in BMI.

Methods

Type of studies:

- Cohort
- Case-control
- Cross-sectional

Participants:

- women with pre-pregnancy or 1st trimester BMI
- any age, parity, ethnic origin
- not previously diabetic
- tested for GDM

Outcome:

GDM in index pregnancy

- WHO or
- ADA criteria

Methodology

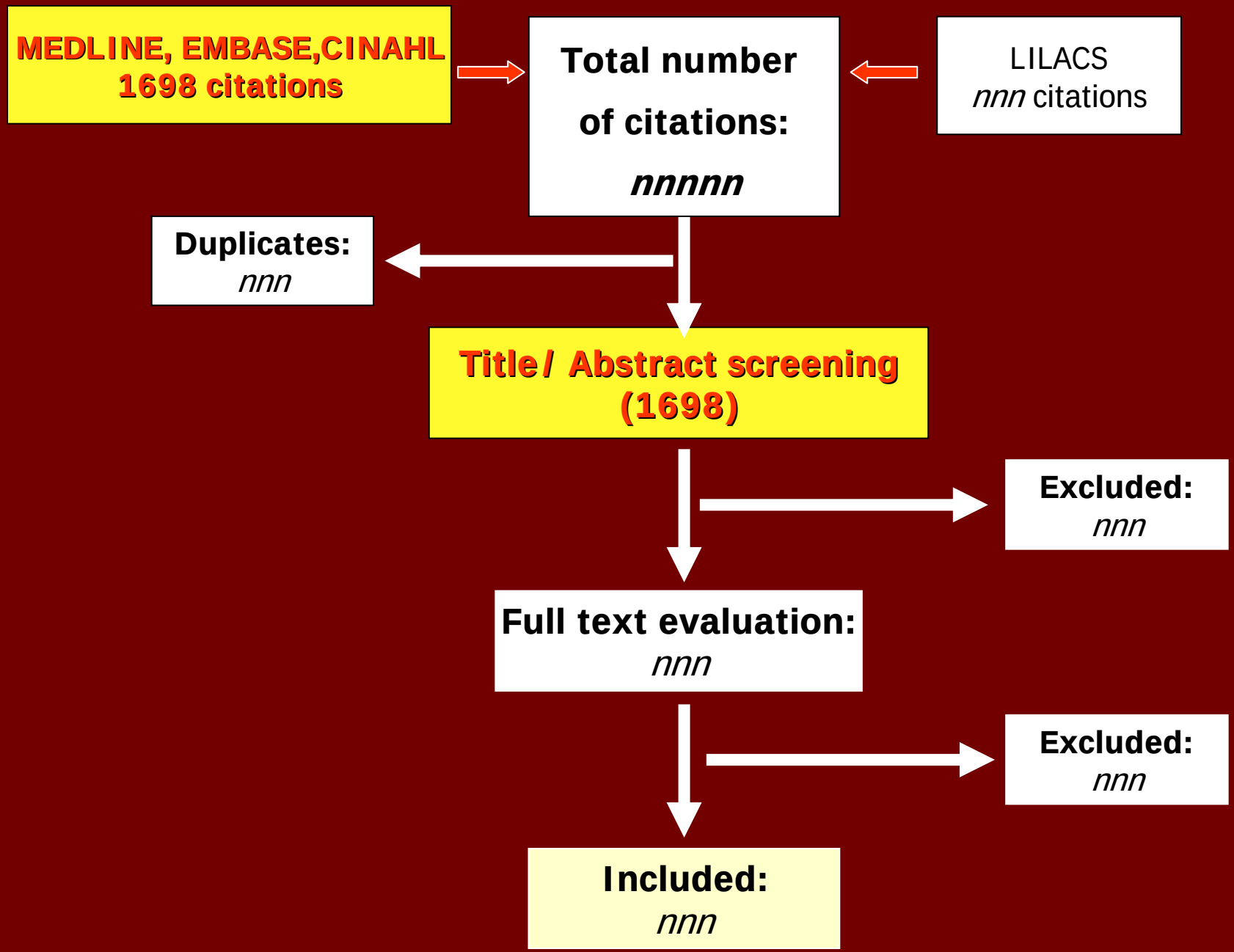
- Search strategy
  - Experienced WHO librarian
  - MEDLINE
  - EMBASE
  - CINAHL
  - LILACS
- No language restrictions
- Published from 1977 -2007 (March 20)
- Additional sources
  - citations from 1ary studies
  - references of review articles

Search Terms

#1: Obesity OR Adiposity OR Body Weight OR Body Mass Index

#2: Gestational diabetes OR Pregnancy-induced diabetes OR Gestational diabetes mellitus

#1 AND #2


MEDLINE, EMBASE,CINAHL
1698 citations
Total number of citations:
nnnnn
LILACS
nnn citations
Duplicates:
nnn
Title/ Abstract screening (1698)
Excluded:
nnn
Full text evaluation:
nnn
Excluded:
nnn
Included:
nnn

Methodology

- Screening & Selection
  - independently by 2 reviewers
  - Title/abstracts
- Full text articles
  - Data extraction form *
  - Quality checklist (score) *

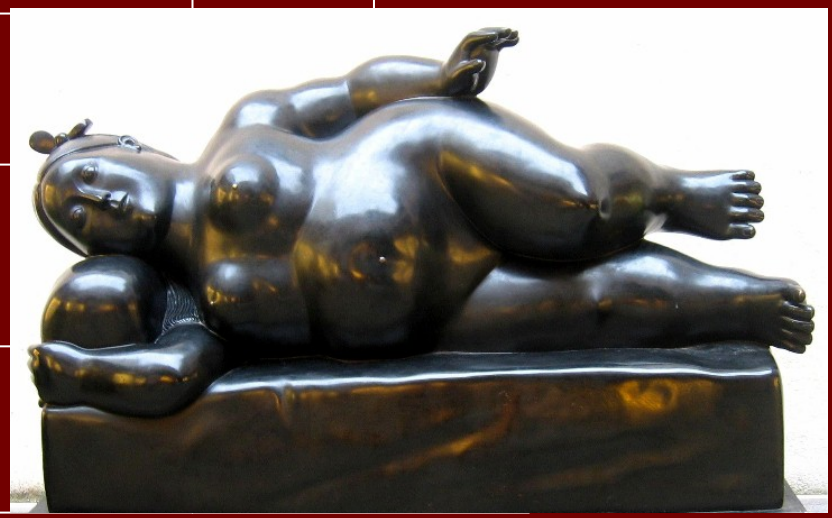
* Created specifically for this Systematic Review

Methodology

- Data Analysis
  - Test heterogeneity (I^2)
  - Meta-analyses (if possible)
    - 1 for COHORT
    - 1 for CASE-CONTROL studies

Time line

2007	April	May	June	July	Aug	Sept
Screening	X					
Data extraction		X	X			
Analysis			X			
Writing						
Submission						



My gratitude to:

- GFMER
- Prof. Aldo Campana, Dr. Regina Kulier
- WHO staff
- Lecturers and librarians University of Geneva

Thank you !

Dr. Metin Gulmezoglu

For making my participation possible.

Guidance , comments, suggestions.

Thank you !

Tomas Allen

Precious help with search strategy

Thank you !

Dr. Ana Betrán

Generous collaboration,

enthusiasm and kindness.

Thank you !