



10/66 Dementia Research Group Neuropsychiatric conditions



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The 10/66 Dementia Research Group

The 10/66 Dementia Research Group is a collective of researchers carrying out population-based research into dementia, non-communicable diseases and ageing in low and middle income countries.

10/66 refers to the two-thirds (66%) of people with dementia living in low and middle income countries, and the 10% or less of population-based research that has been carried out in those regions.

10/66 is a part of Alzheimer's Disease International, and is co-ordinated from the Institute of Psychiatry, King's College London.



Good Quality Research




Generates Awareness



Shapes Policy



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Latest 10/66 News

- Newsletter Released (01/06/08) [More...](#)
- Latest Paper Published (13/05/08) [More...](#)
- New Findings from Chicago Conference (20/03/08) [More...](#)

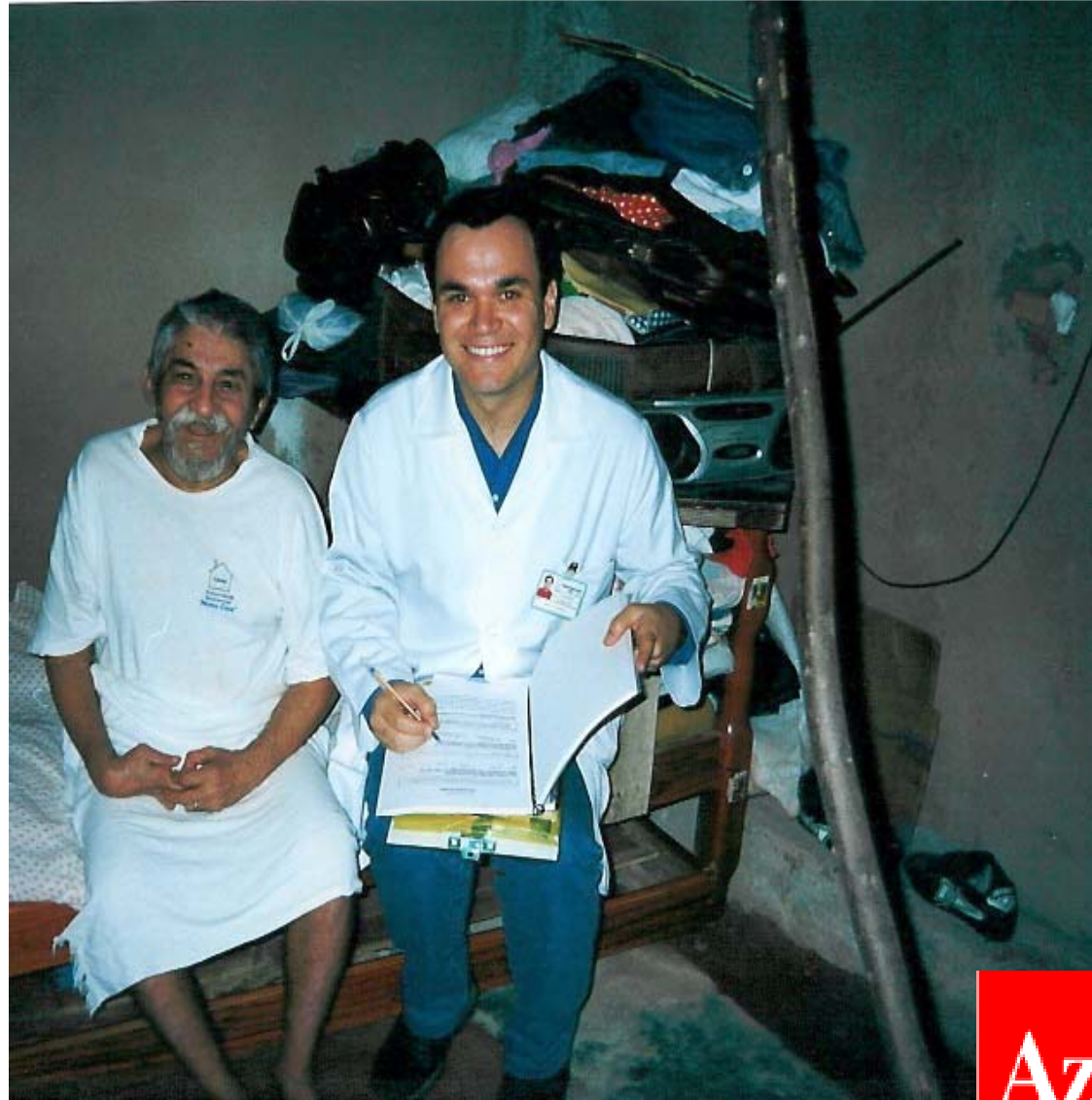
www.alz.co.uk/1066

Research agenda

- Pilot studies
 - Development and validation of culture and education-fair dementia diagnosis
 - Preliminary data on care arrangements
- Population surveys – baseline phase
 - Prevalence of dementia and other chronic diseases
 - Impact: disability, dependency, economic cost
 - Access to services
 - Nested RCT of ‘Helping carers to care’ caregiver intervention
- Incidence phase
 - Incidence (dementia, stroke, mortality)
 - Aetiology
 - Course and outcome of dementia/ MCI

The 10/66 protocol

- Cognitive test
- Clinical interview
- Socio-demographic and risk factor interview
- Physical/ neurological examination
- Fasting blood test
- Informant interview
 - 10/66 dementia
 - DSM IV Dementia
 - DSM IV/ ICD10 mental disorder
 - Chronic disease Dx
 - Hypertension, diabetes, metabolic syndrome



The baseline study

- 21,000 participants
- 15 sites (10 urban, 5 rural) 11 countries
 - Cuba, Dominican Republic, Mexico, Peru, Venezuela, Puerto Rico, Brazil (interviews and blood/ DNA)
 - India, China (interviews)
 - Nigeria (abbreviated protocol)
 - South Africa (pilot)
- Ongoing
 - Sri Lanka (new locally funded centre)
 - Lebanon (seeking funding)

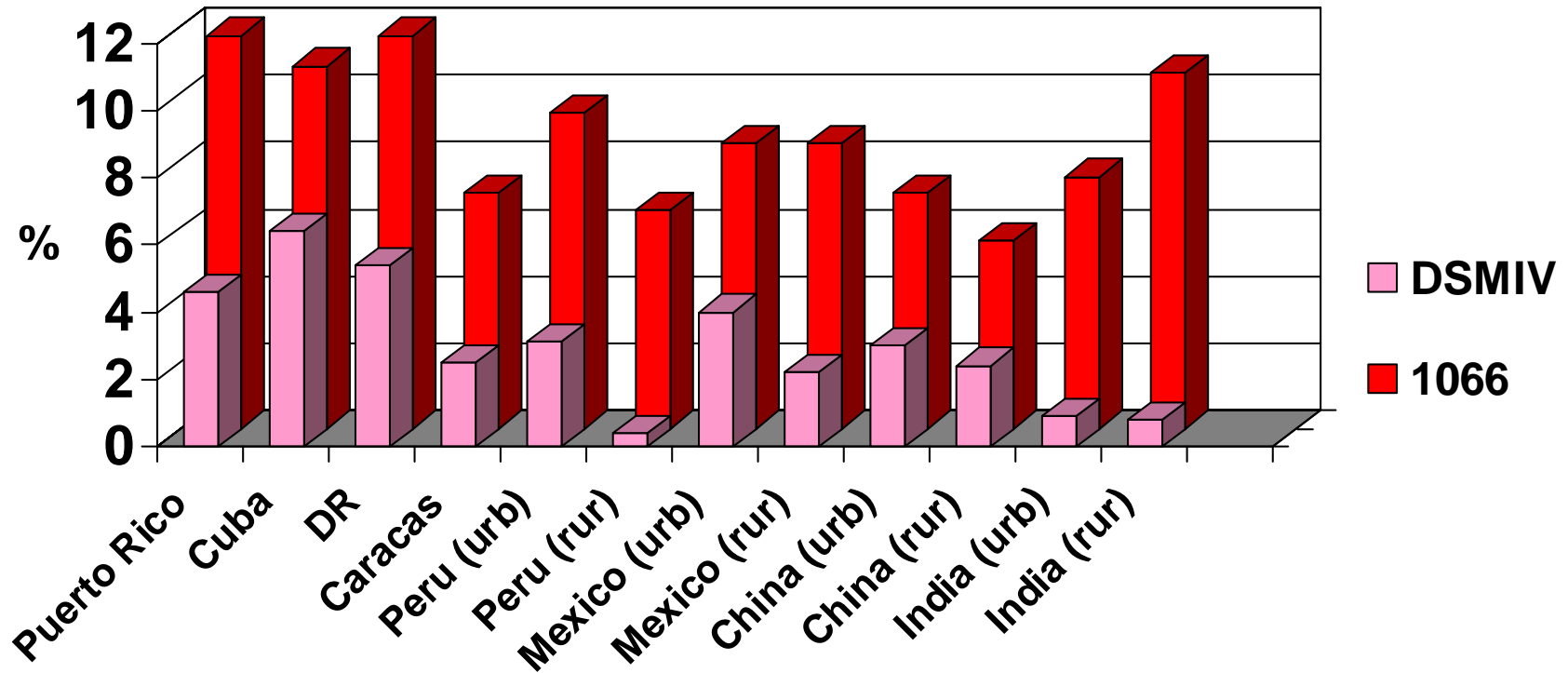
Publications (pilot and baseline)

- Progress so far
 - 60 papers published or in press
 - 11 more under submission
 - 40 using survey data directly
 - 3 RCTs of 'Helping Carers to Care' intervention
- Current work
 - 27 analysis plans approved by oversight committee

Key outputs

- Prince M et al. Dementia diagnosis in developing countries: A cross-cultural validation study. *Lancet* 2003. 361(9361): 909-17
- Ferri CP et al. One Hundred Years On – The Global Prevalence Of Dementia. *Lancet* 2006. 366 (9503) 2112-2117
- Rodriguez JJ et al. Prevalence of dementia in Latin America, India, and China: a population-based cross-sectional survey. *Lancet* 2008. 372(9637):464-74
- World Alzheimer Report. Alzheimer's Disease International 2009
- Sousa RM et al. Contribution of chronic diseases to disability in elderly people in countries with low and middle incomes: a 10/66 Dementia Research Group population-based survey. *Lancet*. 2009. 374(9704):1821-30.

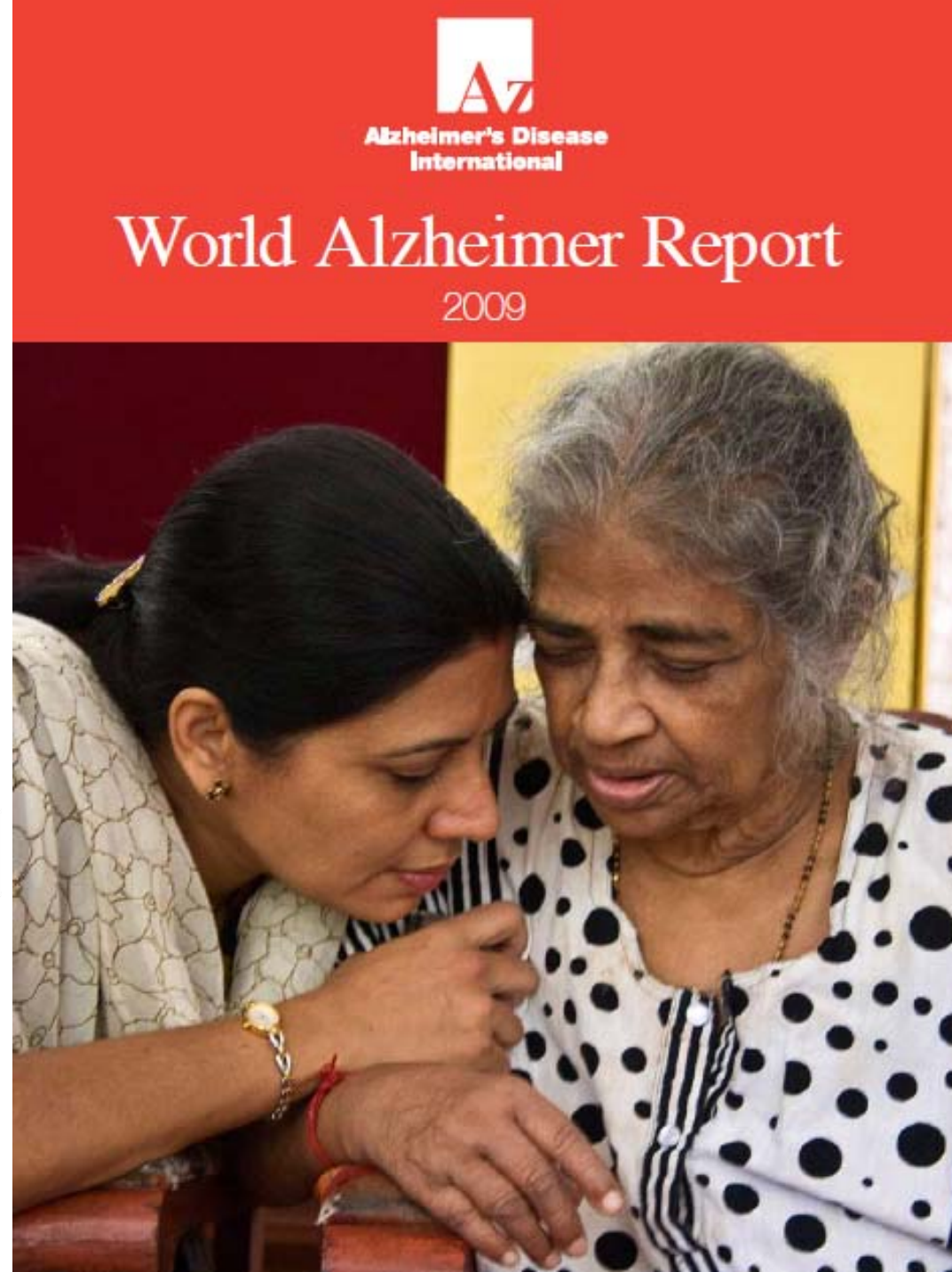
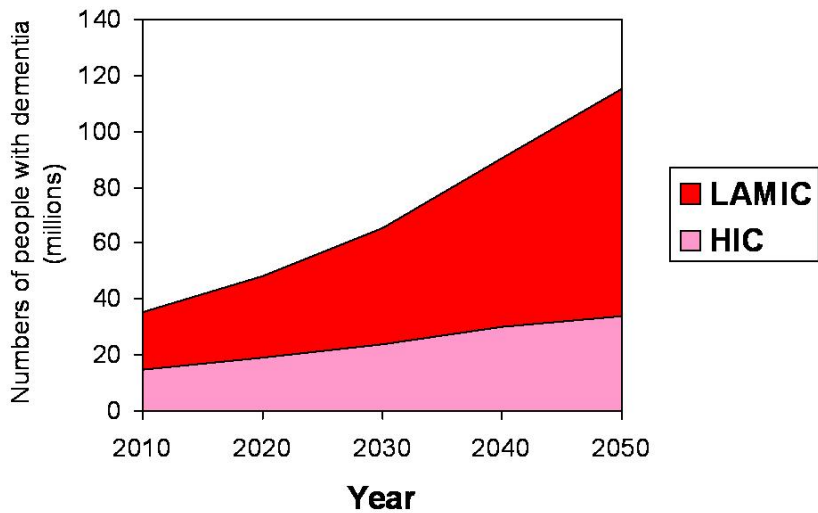
Prevalence of 10/66 and DSM IV Dementia



Rodriguez et al for 10/66, Lancet 2008

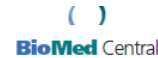


- Prevalence
- Numbers
- Impact
- Action



Chronic disease prevalence in Dominican Republic, compared with USA NHANES

BMC Public Health



Research article

Open Access

Chronic disease prevalence and care among the elderly in urban and rural Beijing, China - a 10/66 Dementia Research Group cross-sectional survey

Zhaorui Liu¹, Emiliano Albanese², Shuran Li¹, Yueqin Huang^{*1}, Cleusa P Ferri², Fang Yan¹, Renata Sousa², Weimin Dang¹ and Martin Prince²

CLINICAL INVESTIGATIONS

The Epidemiology of Dependence in Older People in Nigeria: Prevalence, Determinants, Informal Care, and Health Service Utilization. A 10/66 Dementia Research Group Cross-Sectional Survey

Richard Uwakwe, MBBS, Christian C. Ibeh, MBBS,* Anne Ifeoma Modebe, MBBS,* Emeka Bo, MBBS,* Nkiru Ezeama, MBBS,* Ifeoma Njelita, MBBS,* Cleusa P. Ferri, PhD,† and Martin J. Prince, MD†*

BMC Public Health



Research article

Open Access

The epidemiology of dependency among urban-dwelling older people in the Dominican Republic; a cross-sectional survey

Daisy Acosta^{*1}, Ruth Rottbeck², Guillermina Rodríguez³, Cleusa P Ferri⁴ and Martin J Prince⁴

- Public health perspective
- Detailed descriptive data
- Prevalence, impact, service use, care arrangements
- Independent effect of different chronic diseases



Measuring disability across cultures

International Journal of Methods in Psychiatric Research
Int. J. Methods Psychiatr. Res. 19(1): 1–17 (2010)
Published online 26 January 2010 in Wiley InterScience
(www.interscience.wiley.com) DOI: 10.1002/mpr.299

Measuring disability across cultures – the psychometric properties of the WHODAS II in older people from seven low- and middle-income countries. The 10/66 Dementia Research Group population-based survey

RENATA M. SOUSA,¹ MICHAEL E. DEWEY,¹ DAISY ACOSTA,² JOTHEESWARAN A.T.,³
ERICO CASTRO-COSTA,¹ CLEUSA P. FERRI,¹ MARIELLA GUERRA,⁴ YUEQIN HUANG,⁵
K.S. JACOB,⁶ JUANA GUILLERMINA RODRIGUEZ PICHARDO,⁷ NAYELI GARCIA RAMÍREZ,⁸
JUAN LLIBRE RODRIGUEZ,⁹ MARINA CALVO RODRIGUEZ,⁹ AQUILES SALAS,¹⁰ ANA LUISA SOSA,⁸
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	Crude model	Adjusted model*
Zero inflation		
Cuba	1†	--
Dominican Republic	0.75 (0.66–0.86)	1.08 (0.93–1.26)
Peru (urban)	1.12 (0.97–1.30)	1.10 (0.93–1.28)
Peru (rural)	0.79 (0.64–0.99)	0.57 (0.45–0.73)
Venezuela	1.16 (1.02–1.32)	1.24 (1.07–1.44)
Mexico (urban)	1.55 (1.33–1.81)	1.67 (1.39–2.00)
Mexico (rural)	1.78 (1.53–2.07)	2.16 (1.79–2.60)
China (urban)	5.42 (4.57–6.36)	6.89 (5.70–8.33)
China (rural)	2.26 (1.93–2.65)	1.37 (1.13–1.66)
India (urban)	0.97 (0.83–1.14)	0.64 (0.53–0.77)
India (rural)	0.01 (0.00–0.11)	0.02 (0.01–0.05)

	Crude model	Adjusted model*
Count		
Cuba	1†	--
Dominican Republic	1.12 (1.05–1.20)	1.01 (0.95–1.07)
Peru (urban)	1.02 (0.93–1.11)	1.03 (0.96–1.11)
Peru (rural)	0.72 (0.64–0.81)	0.96 (0.87–1.06)
Venezuela	0.84 (0.78–0.91)	0.86 (0.80–0.91)
Mexico (urban)	0.89 (0.80–0.99)	0.97 (0.88–1.07)
Mexico (rural)	1.06 (0.96–1.17)	1.14 (1.03–1.25)
China (urban)	1.56 (1.39–1.76)	1.27 (1.14–1.41)
China (rural)	0.87 (0.78–0.96)	1.14 (1.05–1.23)
India (urban)	0.78 (0.71–0.86)	1.09 (1.00–1.19)
India (rural)	1.36 (1.27–1.44)	1.65 (1.55–1.77)

The effect of site on WHODAS 2.0 zero inflation and counts (zero inflated negative binomial regression) before and after adjusting for compositional differences

Site variation is mainly accounted for by zero inflation

Count variation, but not zero inflation is reduced after adjusting for compositional differences in health

Sousa et al, Lancet 2009



The relative impact of different health conditions, across 10/66 centres, on disability

Health condition/ impairment	Meta-analysed relative risk for association with disability	Mean population attributable fraction (SD)
1. Dementia	1.9 (1.8-2.0)	25.1%
<i>. Hypertension</i>	<i>1.0 (1.0-1.10)</i>	<i>14.4%</i>
2. Stroke	1.4 (1.3-1.5)	11.4%
3. Limb paralysis/ weakness	1.8 (1.7-1.9)	10.5%
4. Arthritis	1.3 (1.3-1.4)	9.9%
5. Depression	1.4 (1.3-1.5)	8.3%
6. Eye problems	1.1 (1.1-1.2)	6.8%
7. Gastrointestinal problems	1.1 (1.1-1.2)	6.5%
8. Diabetes	1.1 (1.1-1.2)	4.1%
9. COPD	1.0 (1.0-1.1)	3.3%
10. Hearing problems	1.1 (1.0-1.2)	2.2%
<i>Ischaemic heart disease</i>	<i>1.0 (0.9-1.2)</i>	<i>0.8%</i>
<i>Skin diseases</i>	<i>1.1 (0.9-1.3)</i>	<i>0.1%</i>

Sousa et al for 10/66, Lancet, 2009



Association between health status of the index older person, and co-resident psychological morbidity (SRQ-20)

Health condition	Association (PR)* with key informant psychological morbidity	Mean population attributable prevalence fraction (%)	Mediation by dependence?
Dementia	1.98 (1.72-2.28)	9.6	18.0%
Depression	2.11 (1.82-2.45)	8.4	2.3%
Stroke	1.42 (1.17-1.71)	3.9	17.2%
Physical impairments	1.17 (1.13-1.21)	17.8	8.7%

*Adjusted for participant's and co-resident's ages, sex, education, marital status, interrelationship, household assets, other health conditions

Hoshikawa et al, submitted manuscript



Predictors of mortality in Chennai, India

Risk exposure	Adjusted HR (95% CI) (n=727)	PAR % (95% CI)
Male sex	2.0 (1.4-2.8)	0.55 (0.30-0.71)
Arm circumference	0.90 (0.85-0.95)	0.43 (0.19-0.60)
Age		
65-69	1 (ref)	0.45 (0.27-0.59)
70-74	1.4 (0.9-2.1)	
75-79	1.9 (1.2-3.1)	
80+	2.7 (1.7-1.7)	
Cog. Impairment / Dementia		
Cognitively healthy	1 (ref)	0.10 (0.06-0.13)
MCI	1.4 (0.9-2.1)	
CDR questionable dementia	1.9 (1.2-3.1)	
Mild dementia	3.2 (1.6-6.4)	
	Global test of proportional hazards	Total PAR
	Chi squared = 6.1, 9 df, p=0.73	0.87 (0.74-0.93)



Chronic disease prevalence in Dominican Republic, compared with USA NHANES

Health condition	Criterion	Prevalence in Dominican Republic	Source of comparison prevalence data	SMR (95% confidence intervals)
Diagnosed diabetes	Told by a doctor that he/she has diabetes	14.0%	NHANES 1999-2002, USA	88 (73-107)
Undiagnosed diabetes	Never told by doctor that he/she has diabetes, and fasting glucose ≥ 7 mmol/l	3.5%	NHANES 1999-2002, USA	65 (45-92)
Diabetes	Diagnosed or undiagnosed diabetes	17.5%	NHANES 1999-2002, USA	83 (70-97)
Hypertension	Blood pressure $\geq 140/90$ or on antihypertensive treatment	73.8%	NHANES 1999-2004, USA	108 (101-117)
Metabolic syndrome	NCEP – ATP III criteria	39.6%	NHANES 1999-2002, USA	72 (64-80)
Stroke	Told by a doctor that he/she has had stroke	8.7%	NHANES 1999-2004, USA	100 (81-123)
Dementia	DSM IV dementia	5.4%	EURODEM meta-analysis, Europe	85 (65-110)
Anaemia	WHO criteria - haemoglobin women < 12 g/dl, men < 13 g/dl in men	35.0%	NHANES III, 1988-1994, USA	310 (262-373)



Equity in delivery of healthcare - predictors of health service use in the last three months

Exposure	Meta-analysed PR for association with service use
Age (per year)	0.99 (0.98-1.00)
Male sex	0.93 (0.91-0.96)
Education	1.03 (1.01-1.05)
Assets	1.08 (1.01-1.17)
Health insurance	1.27 (1.16-1.38)
In receipt of a pension	1.09 (1.04-1.14)
Physical illness/ impairments	1.37 (1.26-1.49)
ICD 10 depression	1.27 (1.07-1.38)
Dementia	0.93 (0.90-0.97)

Prevalence of service use varied between 6% and 82% by site

Health and demographic variables did not explain this variation

? Out-of-pocket expenses at ecological (health system) level



Cardiovascular risk factors in urban and rural 10/66 sites

	Hypertension prevalence	SMR (US NHANES)	Any CVD risk factor *
Urban			
Puerto Rico	80%	105	89%
Cuba	73%	104	86%
DR	76%	108	88%
Peru (urban)	52%	75	74%
Venezuela	79%	116	83%
Mexico (urban)	67%	96	89%
China (urban)	63%	90	83%
India (urban)	60%	89	75%
Rural			
Peru (rural)	41%	60	63%
Mexico (rural)	55%	78	75%
China (rural)	50%	83	69%
India (rural)	29%	43	70%

* - Hypertension, current smoking, diabetes, obesity



An index of the quality of public healthcare – detection and control of hypertension

	Detection	Control	Detected and controlled
Good			
Peru (rural)	97%	93%	90%
Peru (urban)	93%	78%	73%
Puerto Rico	91%	65%	58%
Moderate			
Mexico (urban)	80%	55%	44%
Venezuela	83%	50%	42%
DR	82%	48%	39%
Mexico (rural)	73%	52%	38%
China (urban)	79%	45%	36%
Poor			
Cuba	70%	34%	24%
India (rural)	43%	43%	18%
India (urban)	44%	37%	16%
China (rural)	51%	5%	3%



Depression in the 10/66 DRG studies

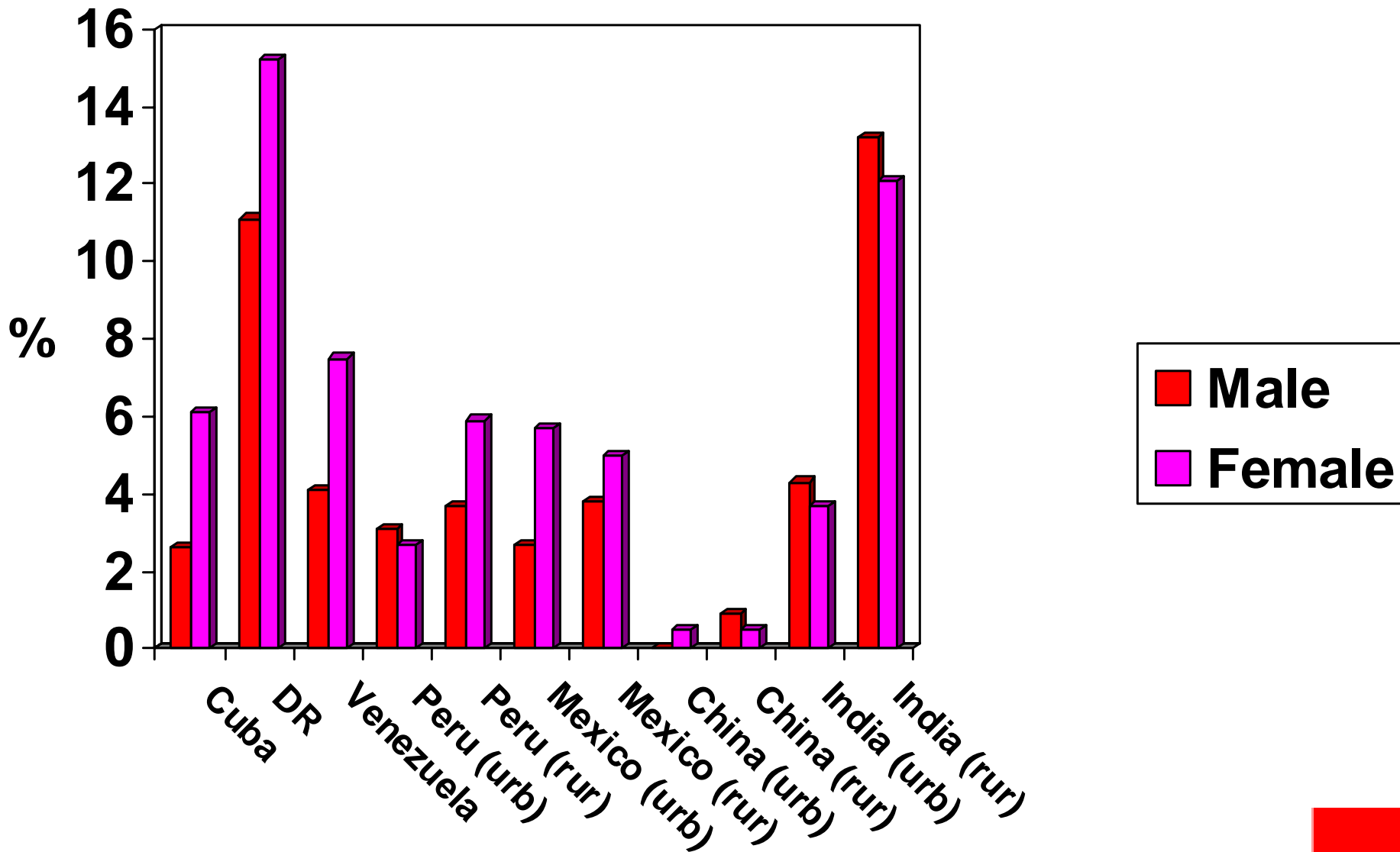
- Geriatric Mental State (GMS)
 - Structured clinical interview
 - AGE-CAT
 - DSM-IV major and minor depression
 - ICD 10 depressive episode
 - Origin of EURO-D scale
- SRQ-20 for psychological morbidity in caregivers/coresidents



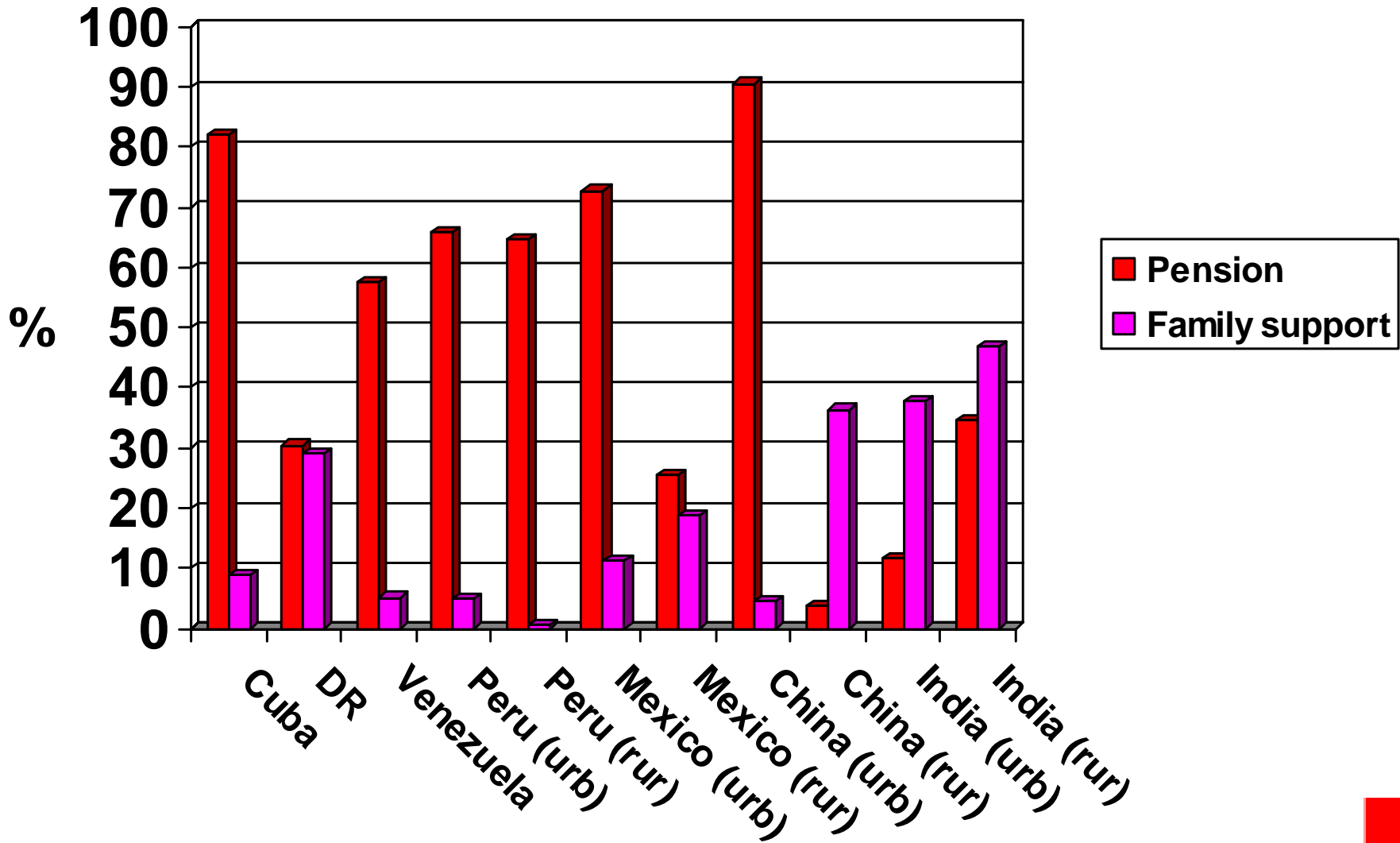
The EURO-D : psychometrics

Centre	Cronbach's Alpha	Area under ROC curve	
		ICD-10 depressive episode	DSM-IV major depression
Cuba	0.77	0.97	0.97
Dom. Rep.	0.76	0.95	0.94
Venezuela	0.73	0.95	0.94
Peru (urban)	0.71	0.94	0.93
Peru (rural)	0.64	0.96	0.97
Mexico (urban)	0.72	0.93	0.95
Mexico (rural)	0.70	0.94	0.94
China (urban)	0.70	1.00	1.00
China (rural)	0.74	1.00	1.00
India (urban)	0.72	0.95	0.99
India (rural)	0.87	0.89	0.93

Prevalence of ICD depressive episode

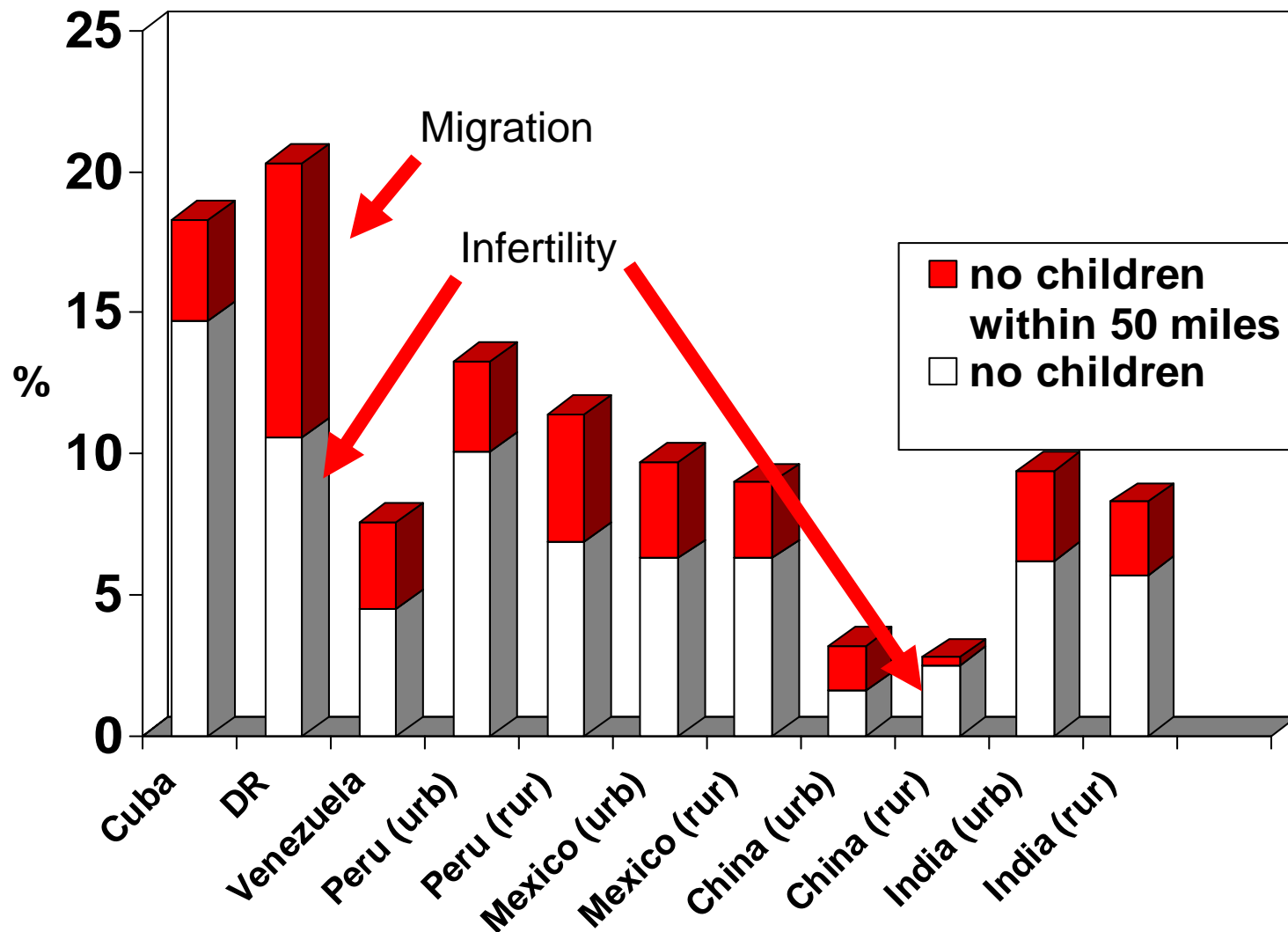


Income support from family, and government or occupational pension (% in receipt of income from those sources)

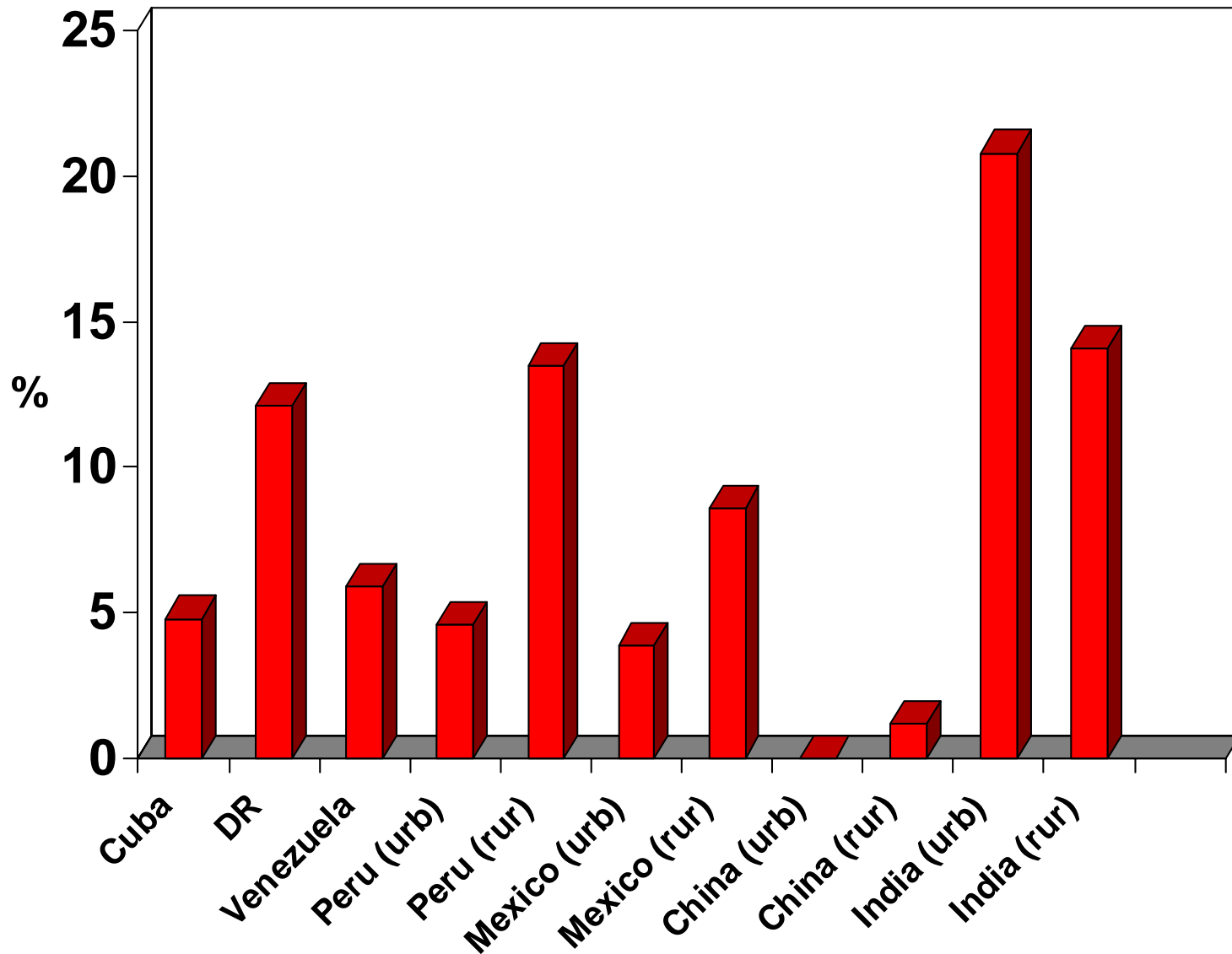


Social protection

– (un)availability of children for support



Prevalence of food insecurity



My thanks to

- Alzheimer's Disease International
- The 10/66 Dementia Research Group in 12 countries:
 - Juan Llibre Rodriguez, Daisy Acosta, Yueqin Huang, Aquiles Salas, Mariella Guerra, Raul Arizaga, Ivonne Jimenez, JD Williams, KS Jacob, Richard Uwakwe, Malan Heyns
- Our funders
 - The Wellcome Trust
 - US Alzheimer's Association
 - World Health Organisation
- The London team
 - Cleusa Ferri, Renata Sousa, Emiliano Albanese, Michael Dewey, Rob Stewart

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