

Changing the Course of Chronic Disease with mDiabetes in India

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12th International IDCA Conference
19 October 2014

Arogya World is a U.S. based non-profit 501 © 3 organization.

Arogya in Sanskrit means good health. More literally to live a life without disease.

Chronic non-communicable diseases called NCDs, include heart diseases, cancer, diabetes and chronic lung diseases

The Problem

- **Non-Communicable Diseases (NCD*s) among top health and development challenges of the century**
 - ▶ 2 out of 3 deaths in the world, 80% in developing countries
- **Alarming Disease Burden in India**
 - ▶ >20% of population one NCD; >10% more than one; 50% die from NCDs
 - ▶ 65 million live with diabetes. Diabetes kills 1 million Indians/yr (IDF)
 - ▶ 30% have high BP
 - ▶ Indians get diabetes 10 years earlier
 - ▶ Half of India < 25 years = alarming public health crisis in 20 yrs
- **Devastating Economic Impact**
 - ↘ The World Economic Forum - cumulative economic output loss due to NCDs (with mental health) over 20 yrs is a **staggering \$47 trillion**.
 - ↘ International Diabetes Federation - **25% of a poor Indian family's income is spent on care for one person with diabetes.**
 - ↘ Arogya's 10,000 women's survey confirms.
 - ↘ 25% women spend 25% of household income on NCDs,
 - ↘ Shockingly, 7% spend 50% of household income on NCDs.

*NCDs = heart disease, diabetes, cancer, chronic lung diseases

Strong Scientific Rationale for Our Work

- **Compelling Clinical Proof Exists that NCDs Can Be Prevented**
 - ▶ WHO: a healthy diet, exercise and avoiding tobacco can prevent 80% of premature heart disease, 80% type II diabetes and 40% of cancers
 - ▶ Landmark Clinical Trial - Diabetes Prevention Program (DPP)
 - ▶ 3,234 high-risk adults in the US. 30 min physical activity/ day + low-fat diet reduced chance of getting diabetes by 58%, (metformin: 31%) NEJM Feb 7, 2002
 - ▶ The Lancet (2009) ...diabetes prevention with lifestyle changes sustained 10 yrs

Our Solution – Global and Local

Engage Leaders, Rally The World, Change Policy

- Engage with Member States: 10,000 Women NCD Impact Global Survey
- Mobilize world / business leaders, policy makers and the general public on prevention
- Op-ed, blog, social media



On the Ground Prevention Programs

- Multipronged approach in India - schools, workplaces and mHealth.
- Engage the individual. Bring about behavior change known to prevent diabetes
- Measurable, scalable impact.
- Chronic Disease Prevention Model for the Developing World



Arogya World Philosophy

- Focus on NCD education and prevention
- Create compelling, science-based, scalable programs
- Monitor impact on a continuous basis
- Partner with others to yield effective solutions

Our Partners and Sponsors



Nokia, Emory,
Johnson & Johnson,
Aetna, Biocon, Ipsos

mHealth2.0 CIGNA
Foundation



Global Health Council, NCD Child, Women Deliver, NCD Action, Public Health, Institute, The Max Foundation, Disruptive Women in Health Care, Hriday, NCD Alliance, World YWCA, Beyond Sport



Schools

HRIDAY-SHAN, Merck, MSD-India, Agastya Foundation



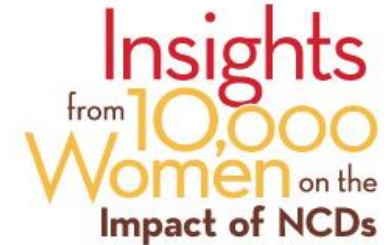
Other Partners:

Duane Morris, Ujjala Foundation, NCD Roundtable, Women & NCDs Task Force, Madras Diabetes Research Foundation



Healthy Workplace

PHFI, Aon, Nationwide
iTiffin



Novartis, Partnership to Fight Chronic Disease, American Cancer Society, UNICEF, Abt SRBI, Jana, PSI



Our Flagship Program = mHealth1.0

A groundbreaking one-million-person diabetes awareness and prevention mHealth program in India. A Completed 2011 CGI Commitment to Action.




 **Diabetes Prevention with mHealth in India**

CHANGING THE COURSE OF
CHRONIC DISEASE

AROGYA
WORLD
Turn to Action. Turn to Change.

Our Partners:

NOKIA  **EMORY** **Diabetes Training and Technical Assistance Center**
ROLLINS SCHOOL OF PUBLIC HEALTH
Emory Centers for Training and Technical Assistance

aetna

Johnson & Johnson

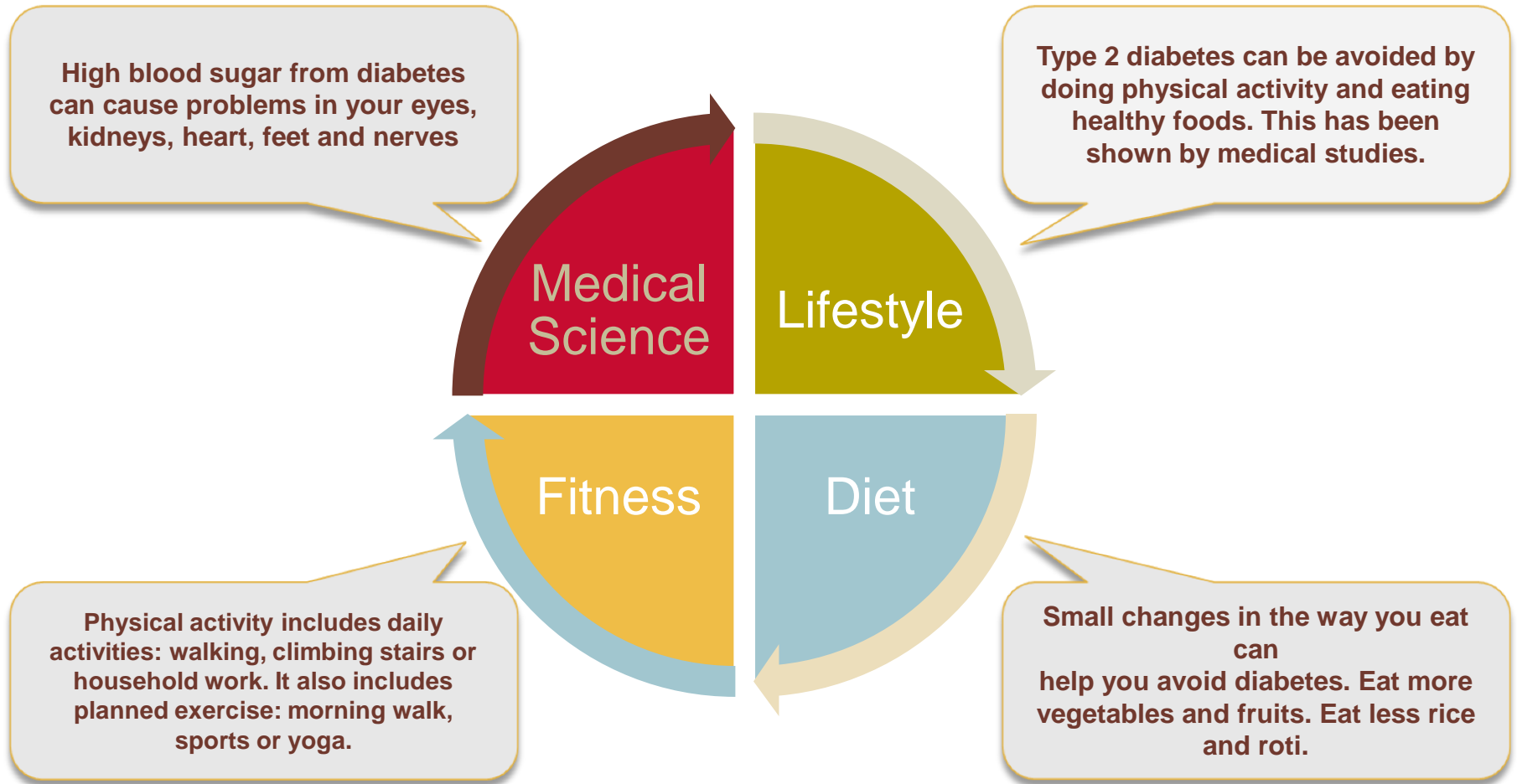
 **Biocon**

 **Ipsos**



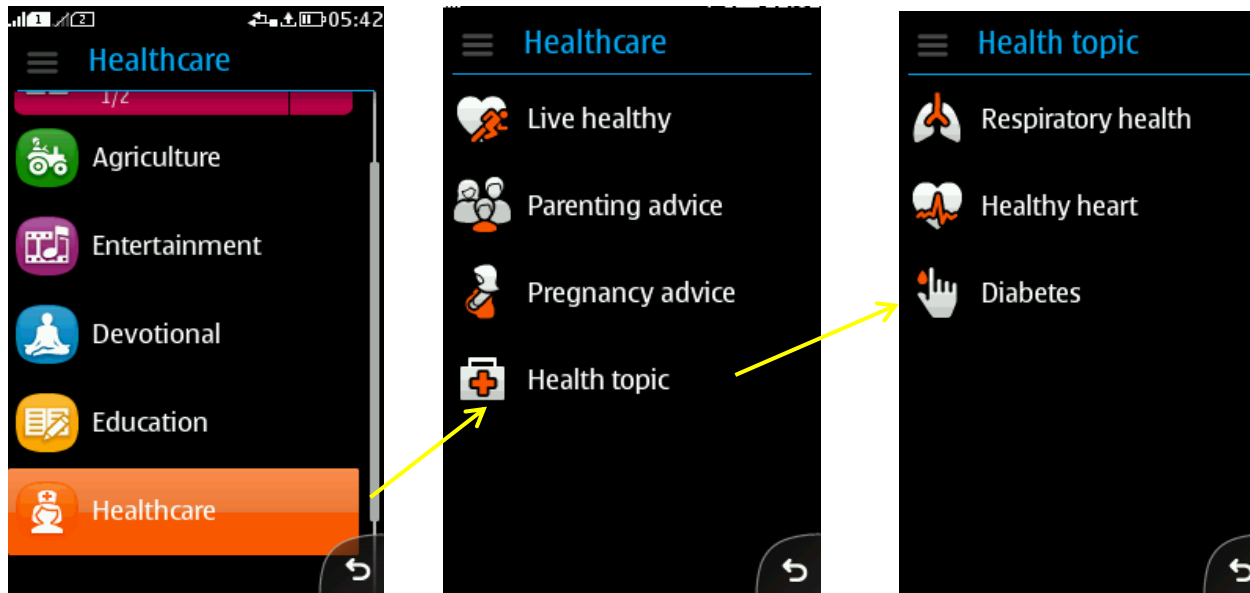
Behavior Change Task Force

mDiabetes: Content



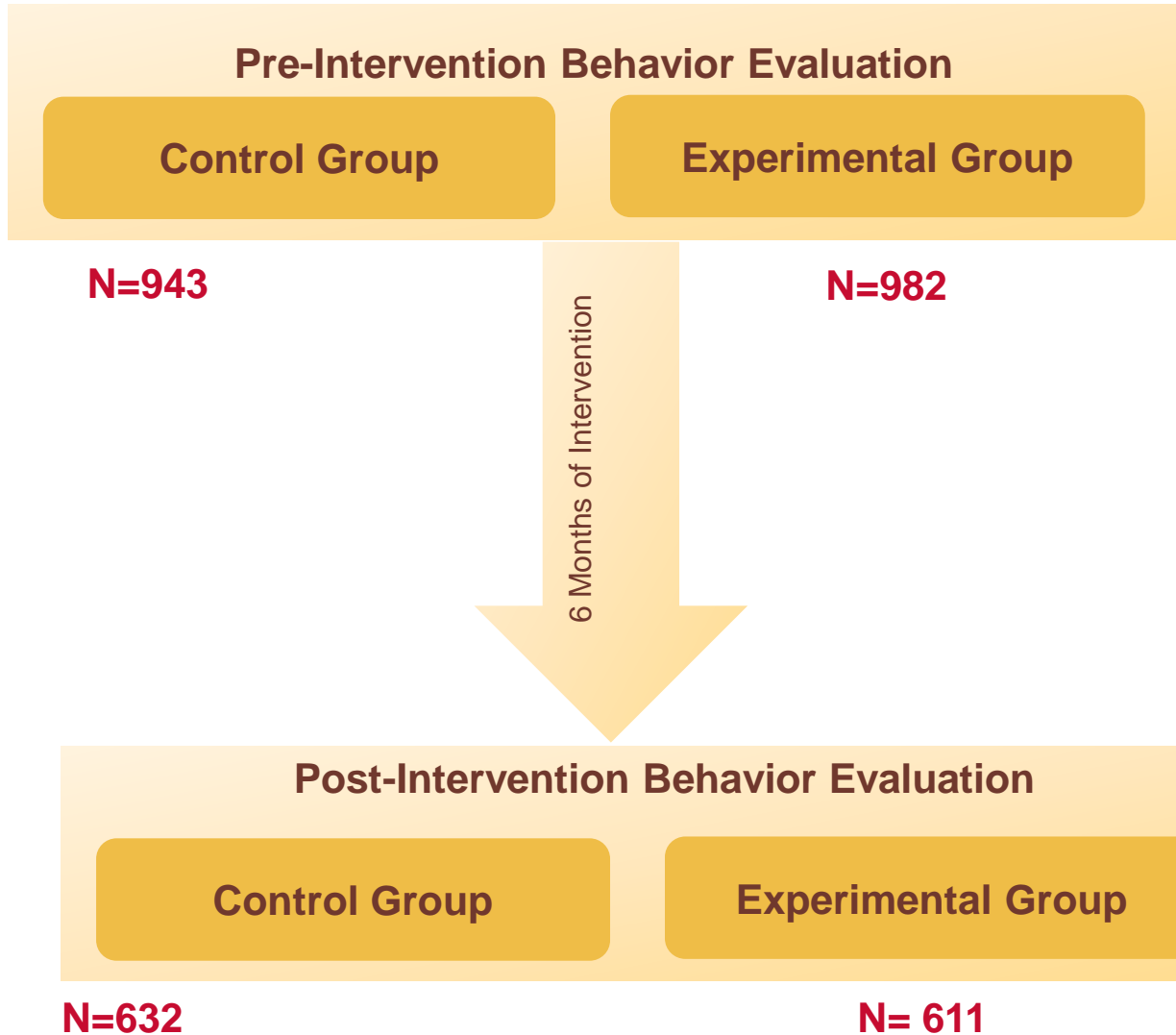
How Were the Messages Sent to Consumers?

Nokia Life provides users with a simple browsing interface on their mobile to explore the application and subscribe to the service



- User navigates the application through a simple graphic menu.
- Graphics on these class of devices are an industry first
- Service is available in 11 Indian languages + English

Effectiveness Evaluation – Methodology



Experimental

- Adult- male or female
- 18 years and above
- Nokia Life subscriber
- Opted in to Diabetes Service

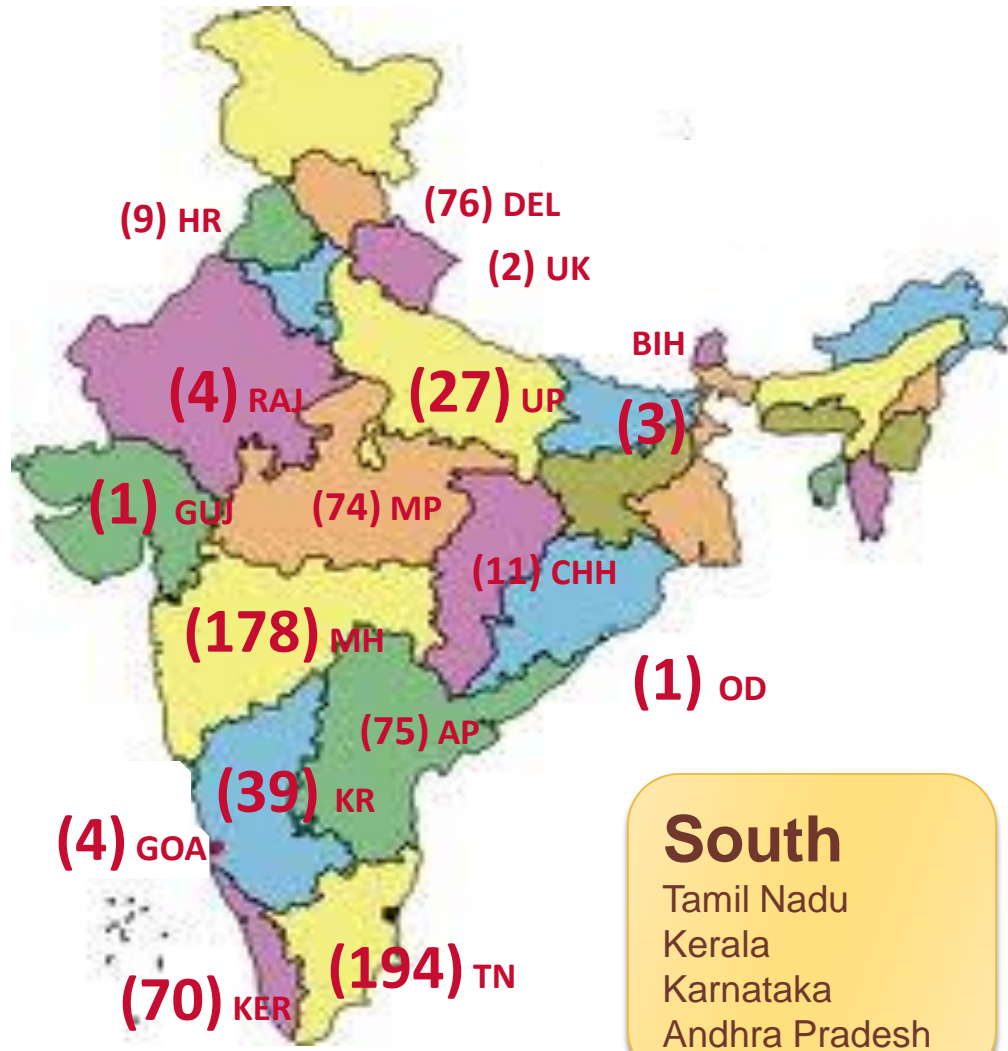
Control

- Adult- male or female
- 18 years and above, not a Nokia Life Subscriber

Telephone interviews

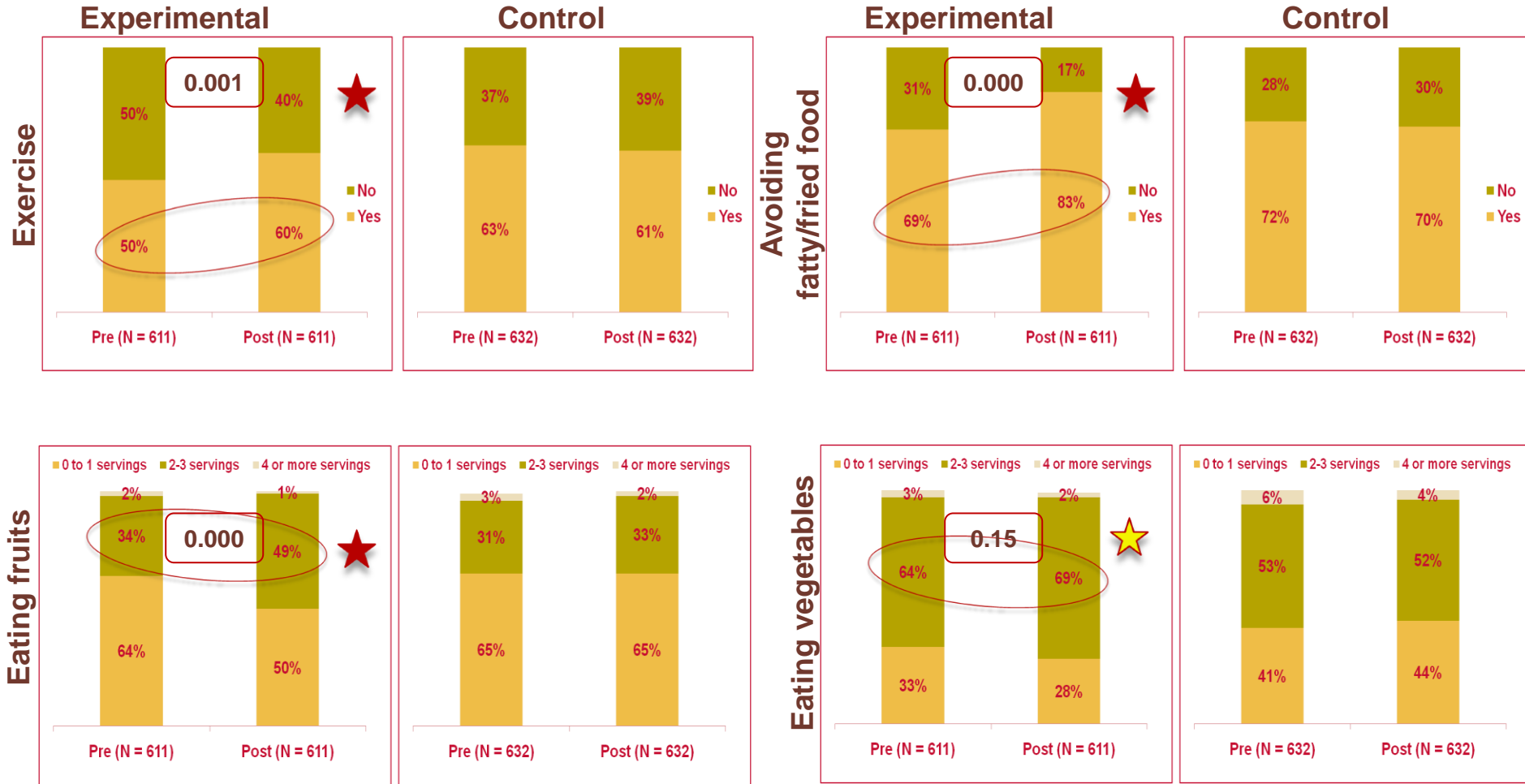
Consumer Responses Collected From All of India (2012)

- North**
- Delhi
 - Haryana
 - Uttar Pradesh
 - Bihar
 - Rajasthan
 - Gujarat
 - Madhya Pradesh
 - Chhattisgarh
 - Maharashtra
 - Odisha
 - Goa



- South**
- Tamil Nadu
 - Kerala
 - Karnataka
 - Andhra Pradesh

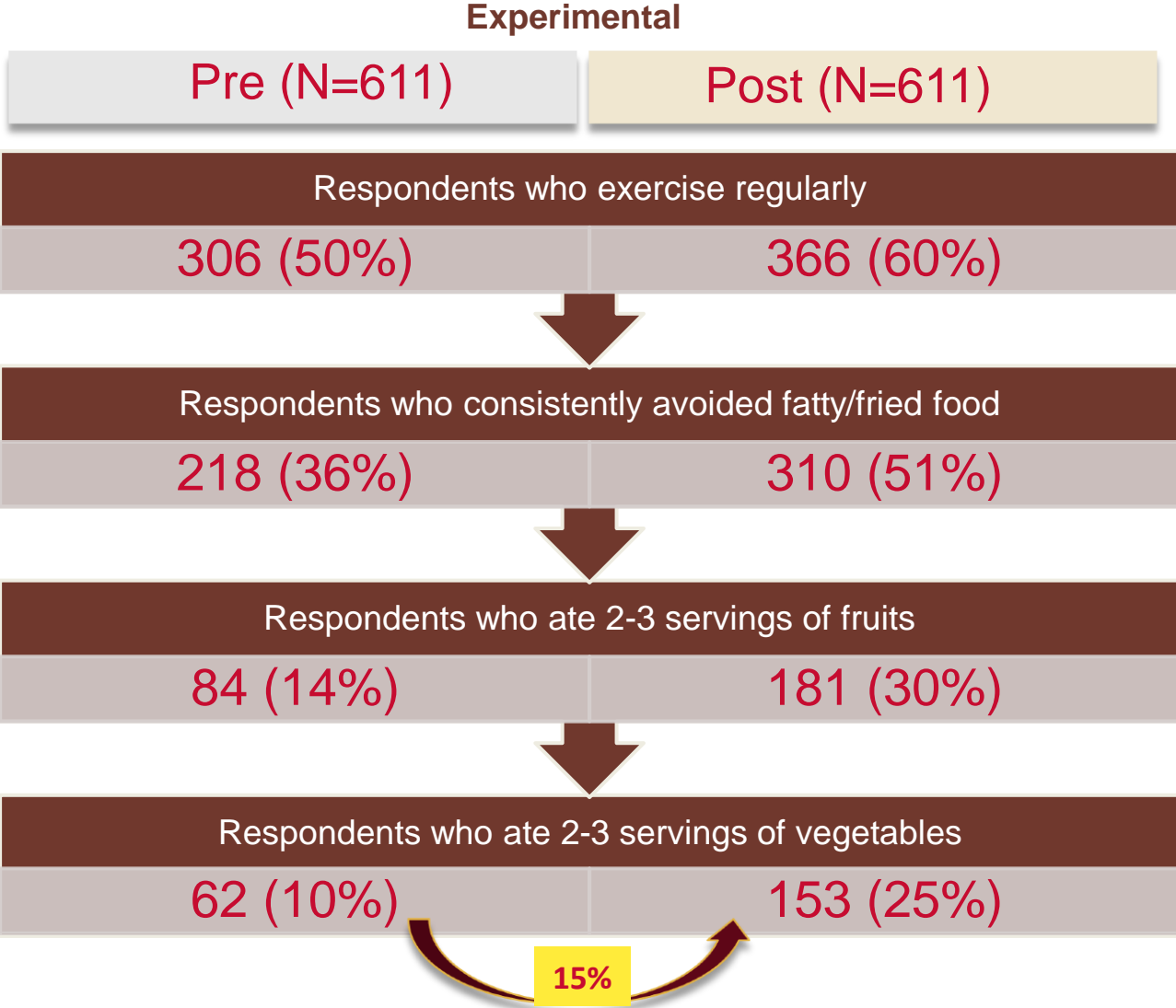
Key mDiabetes Effectiveness Data



★ Statistically significant at 95% confidence; ★ Statistically significant at 80% confidence;

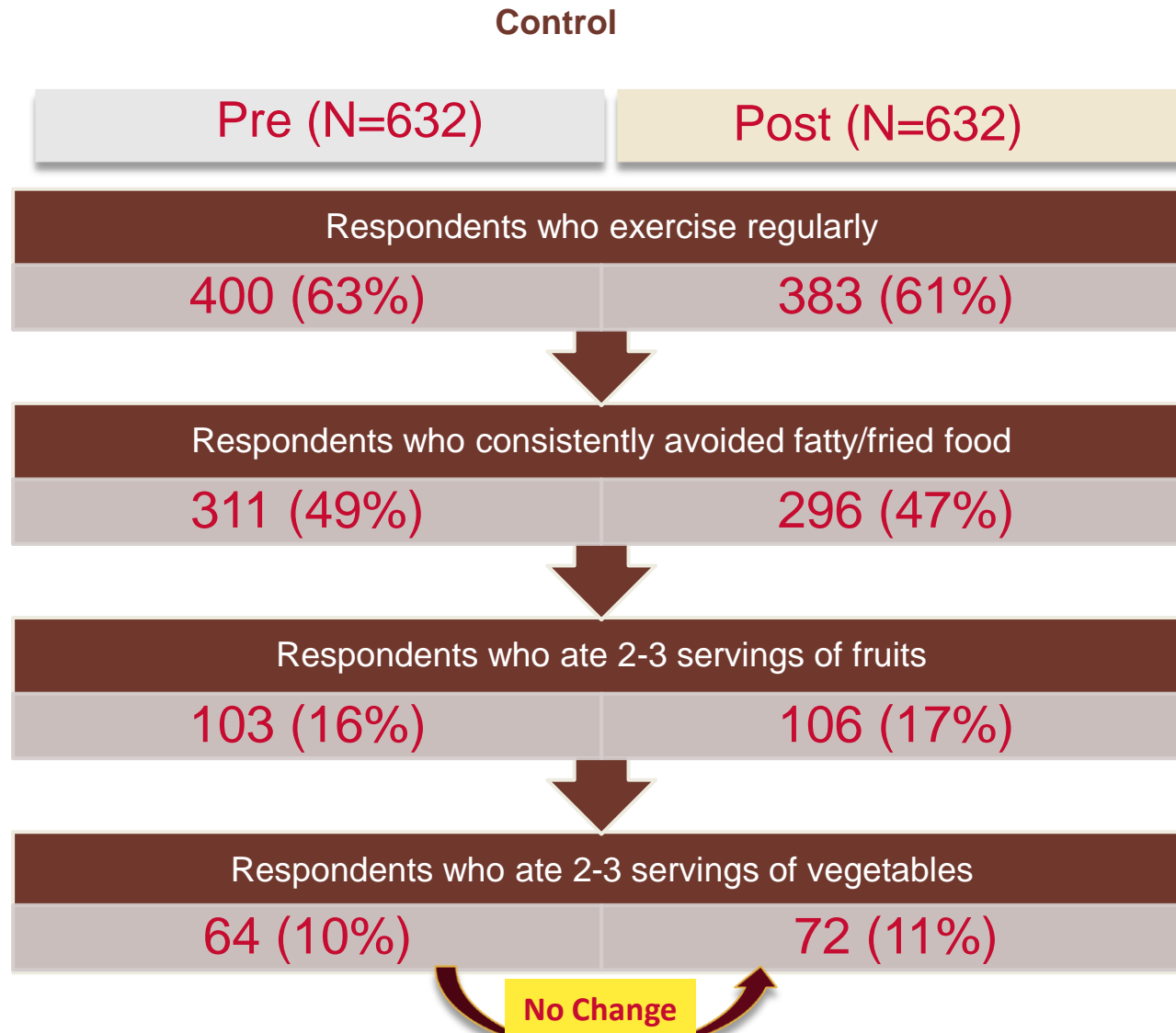
p-value

Considerable Impact: 15% show Multiple Healthy Behaviors



Caveat: Only positive behavior was scored for. It includes -ve ->+ve; +ve->+ve; +ve->-ve

Little or no Change seen in Controls



Caveat: Only positive behavior was scored for. It includes -ve ->+ve; +ve->+ve; +ve->-ve



mDiabetes video shown at plenary session CGI Annual Meeting Sep 2013

Recognition:

- **Finalist for 2014 Drucker Award**
- **Won 2013 mBillionth Award**
- **Finalist 2013 Vodafone Mobile4Good**
- **Finalist 2012 Meffys**

mHealth2.0

- **mDiabetes = mHealth1.0. Population-level program.**
 - ▶ effective, scalable
 - ▶ Estimated to have helped 150,000 Indians lead healthier lives (2012-2013)
- **Expand to mHealth2.0 (funding obtained)**
 - ▶ heart disease/stroke, kidney disease awareness + prevention
 - ▶ Effectiveness in RCT in Healthy Workplaces
 - ▶ Measure Behavior Change + Blood/Urine biochemical markers
- **Build diabetes prevention mobile ‘app’ targeting Indians**
 - ▶ mDiabetes, mHealth2.0, mCessation (for smoking cessation),
 - ▶ nutritional guide to Indian foods, food /activity tracker, risk score

The Arogya World Family

➤ **Arogya World Board (US)**

- ▶ Dr. Nalini Saligram – Founder & CEO; Dr. Pamela Yih, Treasurer, owner Pamela Y-F Yih Inc.;
- Kathryn Graves – Head of Development, Emory Univ Rollins School of Public Health;
- Dr Neelum Aggarwal, Rush University Medical Center; Dr Seema Bhatia – internist;
- Deepa Prahalad – business strategist; Parminder Batra – attorney, entrepreneur

➤ **Arogya World India Trust Board (India)**

- ▶ Mr BS Ramaswamy (Chairman of the Board of Trustees), Dr. Nalini Saligram (Founder Trustee),
- Dr. Susheela Venkataraman – chief technology officer, Asian Development Bank, Dr Arun Gowda, director, phamax AG, market access consulting, Ujwal Thakkar, former head of Pratham

➤ **Consultants/Staff**

- ▶ Shyamala Sami – Senior Consultant, Finance
- ▶ Dr. Sandhya Ramalingam (Bangalore – Head, Program Evaluation, India),
- ▶ Head, mHealth Business, India (tbd)
- ▶ Dr Geeta Bharadwaj, (Mumbai - Head Healthy Workplace Initiative, India),
- ▶ Bala Aryan (Bangalore, Head, Business Development, India)
- ▶ Carrie Hutchison, Washington DC, Digital and Social Media Communications Consultant
- ▶ Nandini Ganesh (Bangalore - Head, Administrative Services, India).

Robert Small (Philadelphia- Accountant), Nityanand & Company (Bangalore – Accountant)

Arogya Influencer Network

➤ Senior Advisors

- ▶ Raj Dave – CEO HealthArc, Dr Meryle Melnicoff (former board member Arogya World)

➤ Behavior Change Task Force

- ▶ US - Dr. Fran Kaufman, Medtronic; Dr. Linelle Blais, Emory University,
- ▶ UK – Zoe Hellman, Weight Watchers
- ▶ India – Dr. Ranjani Harish, Dr. Mohans Diabetes Specialities Centre; Dr. Monika Arora, Hriday-Shan; Sukanti Ghosh, APCO Worldwide; Dr. Kanav Kahol, PHFI

➤ Indo-US Scientific Steering Committee

- ▶ India - Dr K. Srinath Reddy – President, Public Health Foundation of India, Dr V. Mohan – Madras Diabetes Research Foundation, Dr Ashok K. Das – Additional Director General Health Services, Dr Prabhakaran – Centre for Chronic Disease Control, and PHFI, Dr Nikhil Tandon – All India Institute of Medical Sciences, Dr. Prasanna Kumar – Bangalore Diabetes Hospital
- ▶ US - Dr K.M. Venkat Narayan – Emory University, Dr Francine Kaufman – Medtronic, Dr Sethu Reddy – Joslin Diabetes Center, Dr. Om Ganda -Joslin Diabetes Center, Harvard, Dr. Bonnie Spring, Northwestern.

➤ Advisors

- ▶ Dr A Ramachandran - India Diabetes Research Foundation, Chennai; C.V. Madhukar Omidyar; Dr. Arun Chockalingam University of Toronto, Dr. David C U' Prichard Druid Consulting