Good Ageing in Lahti Region (Ikihyvä project) – From research into everyday practice

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GOAL Program

– Collaborative community health promotion program
– Partners:
  • Päijät-Häme Social and Health District and its 15 member municipalities
  • National Institute for Health and Welfare (former National Public Health Institute)
  • University of Helsinki:
    – Palmenia Centre for Continuing Education in Lahti
    – Department of Social Policy
  • Lahti University of Applied Sciences

GOAL Program area, Päijät-Häme

Population ~ 200,000
Main urban center Lahti
GOAL Program timeline

C = longitudinal cohort study; I = independent, cross-sectional sample

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17/11/2010  Absetz NCD 2009
The GOAL intervention model

The GOAL research group

Municipal administration

Implementation by professionals in each specific setting

Type II diabetes prevention

Regional application of Current Care guidelines

Regional model for NCD prevention

Promotion of functional capability

Program design, training and evaluation

System-wide uptake of successful programs
Good Self-Rated Health (SRH) by Social Capital, GOAL Cohort Study 2002

- Social capital measure based on participation and trust:
  - low social capital (low participation/low trust)
  - traditionalism (low/high),
  - “the miniaturisation of community” (high/low)
  - high social capital (high/high).
- The highest rate of good SRH was found among the high social capital group.
- After adjusting for background factors (age, gender, marital status, education and subjective income), statistical significance remained only in the urban area.

From research by Nummela O, Sulander T, Rahkonen O, Karisto A, Uutela A.
Overweight and aging

- Preventing overweight among children and working-age adults is an important goal for health policy.
- Overweight among older adults a more complex phenomenon:
  - Maintenance of weight and even overweight predict independent living
  - But: overweight and obesity may lower ability to manage activities of daily life (ADL)
The youngest age cohort has gained weight during 6 yr follow-up

Type 2 Diabetes is significantly more common among the obese

Incidence of T2D in 2002-2008

Six-year incidence rates were 11% among healthy obese vs 2% among healthy normal weight adults

Overweight and functional capacity

• Walking, climbing up stairs, leaning down without difficulties in the oldest age cohort

• Among the obese:
  – 1/10 women and 1/5 men manage climbing the stairs
  – 1/3 manage walking 500 meters (vs 2/3 of those with normal weight)
  – ¼ manage leaning down
1. Women experience difficulties earlier than men
   – Difference already between two youngest age cohorts

2. Those with obesity experience problems earlier

Some implications of the Cohort Study

• Interventions that foster participation and trust are likely to promote perceived health

• Lifestyle counseling for weight management and weight loss should mainly be targeted at
  – Working-aged adults and those who have recently retired AND
  – Who have been identified with high risk for type 2 diabetes (e.g., risk test or impaired glucose tolerance)

• Obesity-related functional problems should be targeted primarily with physical exercise that helps to maintain lean mass and improve muscle strength
GOAL Lifestyle Implementation Trial to Prevent Type 2 Diabetes
Population at-risk for cardiovascular diseases in Päijät-Häme Hospital District
Estimated numbers in 2002

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Total number</th>
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<tbody>
<tr>
<td>Age 50-65 yrs</td>
<td>49 126</td>
</tr>
<tr>
<td>Overweight 35%</td>
<td>17 194</td>
</tr>
<tr>
<td>Obese 15%</td>
<td>7 369</td>
</tr>
<tr>
<td>Impaired glucose tolerance 15%</td>
<td>7 369</td>
</tr>
<tr>
<td>Smoking 23 %</td>
<td>11 299</td>
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</table>

Estimations based on population risk factor prevalences, from Peltonen et al SLL 2006 and Helakorpi et al 2005
Needs assessment for DM2 prevention

- Need for improved practice in primary health care
  - Increasing numbers of patients at risk for DM2¹
  - Effectiveness of current practice? (individually given nurse advice)²:³

- Evidence: DM2 can be prevented by lifestyle change⁴
  - Evidence-based program goals:
    1. No more than 30% of energy from fat
    2. No more than 10% of energy from saturated fats
    3. At least 15g / 1000 kcal fiber
    4. At least 30 min / day moderate physical activity
    5. At least 5% weight reduction

- Behavioral sciences: Increasing self-efficacy and self-regulation effective strategies⁵

¹ Peltonen et al. Lihavuuden, diabeteksen ja muiden glukoosianeenvaihdunnan häiriöiden esiintyvyys suomalaisessa aikuisväestössä. Dehkon 2D-hanke (D2D). [Prevalence of obesity, type 2 diabetes, and other disturbances in glucose metabolism in Finland - The FIN-D2D survey], Suomen Laakarilehti 61:163-170, 2006


GOAL Lifestyle Implementation Trial

- To implement findings from RCT’s to primary health care
  - Participant behavior change based on health behavior theories
  - Aiming to change preventive practices and to provide tools for promoting behavior change
  - Outcome and process evaluation:
    - Who were the ones to benefit?
    - What factors accounted for the success?


Setting and participants

- All 16 primary health care centres in the 14 municipalities of Päijät-Häme
- Group counselling program, 6 structured 2-hour sessions
- Public health nurses and physiotherapists as facilitators
- 36 groups, M = 11 participants per group
- Total N = 389, men (N = 103, 26.3%); women (N = 286, 73.7%)
  - Baseline N = 352 (non-diabetics); 12 month F-U N = 319 (91%)
  - Age 50-65 years
  - At least moderate risk of type II diabetes:
    - 1/6 will get diabetes in the next 10 years
    - Type 2 diabetes risk test*, risk score ≥ 12
- Exclusion criteria:
  - Diagnosed T2D; cancer; recent MI or stroke; or mental disorder or substance abuse interfering with group activities

## Study timeline & data collection

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- **Q1-Q5** = Questionnaires
- **L1-L4** = Lab tests
- **C1-C6** = Counselling sessions
- **A1-A4** = Anthropometric measurements

**F** = Focus group interviews
**T** = Thematic interviews

0     1 mo  3 mo  8 mo  13 mo  18 mo  3 yrs

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17/11/2010 Absetz / NCD seminar 2010 GOAL Lifestyle Implementation Trial
Theory-base for health behavior change

• Process view on lifestyle change (Health Action Process Approach\(^1\)):
  – Motivation, intention, planning, action, esp. Self-efficacy and action planning

• Self-determination of behaviour\(^2\):
  – Empowerment
  – Internal vs external motivation
  – Autonomous vs controlled regulation of behavior

• Self-regulation skills\(^3\):
  – Self-monitoring, goal setting, action and coping planning, feedback and evaluation

• Positive emotions\(^4\):
  – Valuable as such but have also health benefits

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## Attainment of intervention objectives (%)

<table>
<thead>
<tr>
<th>Intervention objectives</th>
<th>GOAL* N=352</th>
<th>DPS N=265</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fat &lt; 30E%</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td>Saturated fat &lt; 10E% ‡</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Fibre &gt; 15g/1000 kcal§</td>
<td>52</td>
<td>25</td>
</tr>
<tr>
<td>Moderate intensity PA &gt; 30 minutes / day ‖</td>
<td>66</td>
<td>86</td>
</tr>
<tr>
<td>Weight reduction &gt; 5% ¶</td>
<td>12</td>
<td>43</td>
</tr>
<tr>
<td>4-5 objectives attained</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>

* Intention to treat, non-respondents regarded as not reaching the intervention objectives
‡ Statistically significant difference between DPS and GOAL ($\chi^2 = 4.614$, $p < 0.05$)
§ Statistically significant difference between DPS and GOAL ($\chi^2 = 46.070$, $p < 0.001$)
‖ Statistically significant difference between DPS and GOAL ($\chi^2 = 33.068$, $p < 0.001$)
¶ Statistically significant difference between DPS and GOAL ($\chi^2 = 75.613$, $p < 0.001$)

GOAL participants with 4-5 objectives were more likely to have normal glucose at follow-up ($\chi^2 = 7.120$, $p < 0.05$)

Moderate reduction in BMI maintained at 3 years (p<.001)

Glucose tolerance at year 3

• 193 participants had normal glucose tolerance at baseline
  – 10.9% had IGT and 1.6% diabetes at year three.
• 65 participants had IGT at baseline
  – 12% had diabetes and 43% had returned to normal by year three
• Conversion rate from IGT to diabetes – 12% at year three – is reasonable compared to 9% in the intervention and 20% in the control group of the DPS

Predicting maintenance of weight-loss at three year follow-up

- Baseline optimism vs pessimism do not predict maintenance of weight loss

Increase of self-efficacy during the 3 months of intervention predicts maintenance at 3 years
Promoting Healthy Ageing And Independence Among The Ageing Population In Päijät-Häme

GOAL Program for Good Ageing

17/11/2010
Strength and balance

- Poor balance is the main risk factor for falls
- In year 2000, the cost of falls related injuries in Finland € 39 million, 82% due to hip fractures
- Annually, > 7000 hip fractures, 90% resulting from falling
- Treatment costs in the first year after fracture, in average € 17,000
- Cost in the first year after permanent institutionalization due to hip fracture, in average € 41,900 (Sihvonen & Salmela 2009)
The GOAL Healthy Aging Program

GOAL Healthy Aging Program 2008-2012

- Development of a model to evaluate, enhance/maintain, and monitor functional capacity among the aged population
- Fostering partnership between public sector and third sector organizations in preventive care
- Utilising existing infrastructure for implementing novel practices
- Regional and local emphasis

Implementation of intervention:
- Guided strength and balance training
- Creative group activities for social functioning, healthy eating and daily physical activity

Screening and identification of older adults ≥ 70 yrs at risk of impaired functional capacity

Referral to intervention for those identified
Referral to follow-up testing and recording of functional capacity
Design and measurements

- Intervention group, a non-randomised control group (target N=320)
  - Intervention 12 weeks, 24 sessions with 1 h exercise, 1.5 h group discussion
- Baseline (recruitment)
- 3 months (immediate post-intervention)
- 15 months (one-year post-intervention)
Measures

• Recruitment by nurse
  – Inclusion:
    • SPPB 7-9 (physical functioning)
  – Exclusion:
    • MMSE ≤ 20 (memory)
    • GDS >10 (mood)
    • AUDIT ≥12 (alcohol)
  – Other:
    • MNA (nutrition)

• Self-administered questionnaire study:
  – SPS (social support, quantity and quality)
  – Hyve-measure (social functioning)
  – RAND 36 (Health-related QoL)
  – Health behavior

Those excluded are referred to relevant other care processes within the health care.
Goal-oriented approach (self-regulation) for active, healthy aging:

- Clarify your own life goals and values
- Self-monitor your current situation (in relation to social networks, eating, physical activity etc relevant areas in your life you want to tackle)
- Identify needs (by evaluating current situation in relation to life goals and values)
- Set SMART goals to overcome discrepancies between current situation and life goals
- Make a step by step action plan
- Monitor and evaluate outcomes
Pilot phase of the intervention

- Participants: Intervention arm n=33, control n=12
- Mean age 78 years (71-90 vuotta)
- Men n=9, women n=36
2/3 have had pains during the past month, 2/5 quite a lot/ very much
Current physical condition
(small value means better condition)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Baseline</th>
<th>Follow-up</th>
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<tbody>
<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>2.85</td>
<td></td>
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<table>
<thead>
<tr>
<th>Control</th>
<th>Baseline</th>
<th>Follow-up</th>
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<tbody>
<tr>
<td>2.9</td>
<td></td>
<td>2.9</td>
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</table>
Pain during past month in the intervention group

Baseline: 3.6
Follow-up: 3.1

P<.05
Lifting a shopping bag and ease of walking up the stairs (intervention group)

**Baseline**: 2.10, 2.50
**Follow-up**: 1.95, 2.40

**P < .05**

**No changes in control group**

P < .01

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Promoting system-wide uptake and maintenance of lifestyle intervention

- Quality management in health care
  - Training
  - Standard protocol
  - Self-monitoring and recording of professional practices
  - Feedback

- Infrastructure that promotes maintenance of the program
  - Management support
  - Co-ordinators
  - Ongoing training programs
  - Electronic patient database to record and evaluate outcomes
From research to practice

Randomized, controlled trial: Efficacy of lifestyle change
Tuomilehto et al., 2001

Behavior change theories

Applicability

Implementation research: Current Care Guidelines in CVD prevention
Kuronen et al., 2006

Functionality

Organizational change theories

Sustainability: Preventive Processes and supporting infrastructure
Absetz & Patja (eds.), 2008

Quality control

Systemicity
Identification of a patient at risk for T2DM

Process for supporting lifestyle changes


17/11/2010 Absetz NCD 2009
Diffusion to down-under and elsewhere:

- Australian DPP: an implementation trial by the GGT University in Victoria in 2003-2006
- State-wide roll-out: Life! program by Diabetes Australia - Vic in 2008-2011
- Malaysian DPP to start in 2010?
- India: DPP in Kerala, funding granted by MRC Australia


Diabetes Prevention in Practice
Editors: Schwarz P, Reddy P, Greaves CJ, Dunbar JA, Schwarz J.
TUMAINI Institute, Dresden 2010.

Practical tools:
Thank you!