


○ ○ ○

Predictors of waist circumference change after participation in a pedometer-based workplace intervention

Rosanne Freak-Poli & Anna Peeters


Monash University, Department of Epidemiology & Preventive Medicine



○ ○ ○

Background

- A number of goal based pedometer workplace interventions have been developed
- We have evaluated changes in risk factors associated with participation in the Global Corporate Challenge® (GCC).
- We found that waist circumference decreased on average by 1.6cm.
- Currently there is little evaluation of predictors of “success”



○ ○ ○

Conceptual framework: Impacts on ‘success’

Environmental General	Environmental Workplace	Behavioural	Demographic
Accessibility of healthy & unhealthy food Access to and convenience of: - footpaths - sports fields - active transport - public transport - food shops - fast food outlets Social norms of: - Family - Friends - Co-workers	-Policies & support for health and wellbeing - Physical demands of job -Potential for incidental activity at work -Food availability -Workstation design -Availability of health promotion programs -Distance between workplace and home	- Motivation - Nutrition - Physical Activity - Smoking - Alcohol - General health & wellbeing - Health risk status	- Age - Sex - Education - Socio-economic status -Ethnicity

○ ○ ○

Conceptual framework: Impacts on ‘success’


Environmental General	Environmental Workplace	Behavioural	Demographic
Accessibility of healthy & unhealthy food Access to and convenience of: - footpaths - sports fields - active transport - public transport - food shops - fast food outlets Social norms of: - Family - Friends - Co-workers	-Policies & support for health and wellbeing - Physical demands of job -Potential for incidental activity at work -Food availability -Workstation design -Availability of health promotion programs -Distance between workplace and home	- Motivation - Nutrition - Physical Activity - Smoking - Alcohol - General health & wellbeing - Health risk status	- Age - Sex - Education - Socio-economic status -Ethnicity

Who is the program reaching?

○ ○ ○

Aim

To assess individual characteristics predicting reduction in waist circumference associated with participation in the GCC.



○ ○ ○

Methods

- The Global Corporate Challenge®
 - established world wide
 - occurs annually
 - four months (May to Sept)
 - 10,000 step per day goal
 - teams of 7 employees
 - web-based daily diary
 - team progress virtually across a world map



Methods

- Recruited a volunteer cohort of approx. 800 GCC participants from 10 participating companies across Melbourne
- Data collected four times within 18 months
 - Includes self-reported questionnaire and measured biomedical characteristics including waist circumference
 - April/May 2008: before the GCC event
 - Sept–Nov 2008: after the GCC event

MONASH University

Baseline characteristics

	n	Age		Sex	% Tertiary qualification
		Mean (SD)	Range	% Male	
GCC Evaluation Study	778	39.81 (10.5)	20 - 67	40.2	79.6
GCC Event 2008	4133	38.97 (9.8)	18 - 73	43.8	79.2
Statistical significance		p=.03*		p=.07	p= 0.85

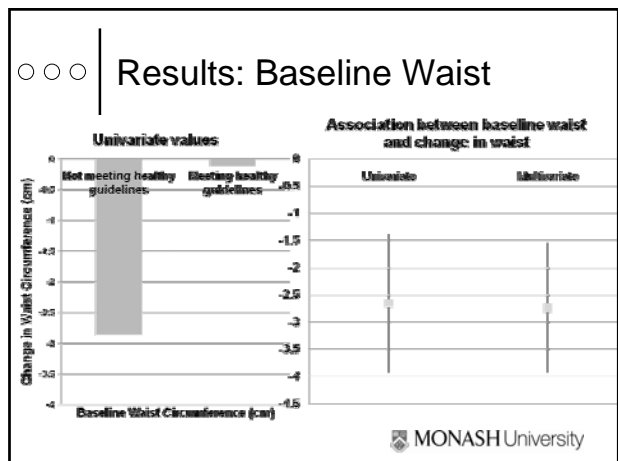
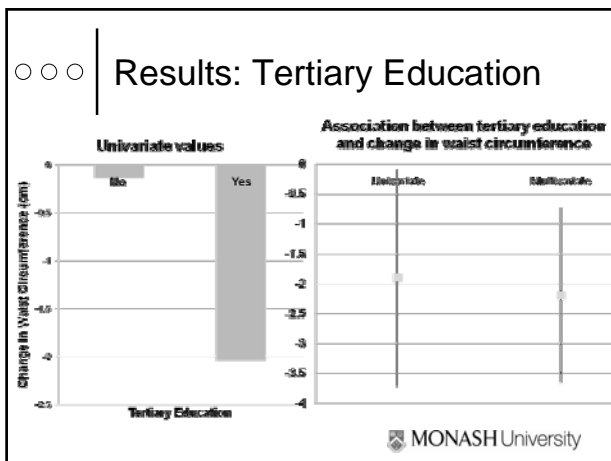
MONASH University

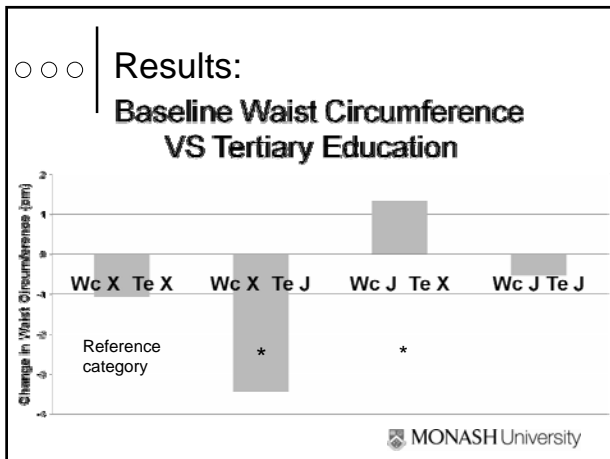
Baseline characteristics

		Healthy Guidelines	% meeting guidelines
Behavioural	Smoking	none	91%
	Fruit Intake	2-4 serves of fruit/day	68%
	Vegetable Intake	4-8 serves of vegetables/day	15%
	Sedentary behaviour	Below study mean (<480 min/day)	51%
	Physical Activity	>150 minutes of moderate-intensity physical activity (vigorous counted as double)	39%
Physical	Waist circumference	Men: <94cm, Women: <80cm	47%
	Diabetes risk	<1 in 100 chance of developing within the next 5 years	38%

Results: Univariate Analyses

Demographics	Motivation	Behavioural Measures
- *Age - *Sex - *Tertiary education - *Socio-economic status (SEIFA)	(at baseline, self-reported) - *Participation in a prior GCC - *Reason for participation - Other family, friends or colleagues participating	(at baseline, self-reported) - *Smoking - Fruit Intake - Vegetable Intake - *Sedentary behaviour - *Physical Activity
Workplace		Physical Measures
- *Company - Workplace encouragement - Adequate time within working hours		(at baseline) - *Waist circumference - Diabetes risk
Potential predictors (p<.05) *Potential Confounders		





Conceptual framework: Impacts on 'success'

Environmental General	Environmental Workplace	Behavioural	Demographic
Accessibility of healthy & unhealthy food Access to and convenience of: - footpaths - sports fields - active transport - public transport - food shops - fast food outlets Social norms of: - Family - Friends - Co-workers	- Workplace - Policies & support for health and wellbeing - Physical demands of job - Potential for incidental activity at work - Food availability - Workstation design - Availability of health promotion programs - Distance between workplace and	- Motivation - Nutrition - Physical Activity - Smoking - Alcohol - General health & wellbeing - Health risk status (increased WC)	- Age - Sex - Education - Socio-economic status - Ethnicity

Conceptual framework: Impacts on 'success'

Environmental General	Environmental Workplace	Behavioural	Demographic
Accessibility of healthy & unhealthy food Access to and convenience of: - footpaths - sports fields - active transport - public transport - food shops - fast food outlets Social norms of: - Family - Friends - Co-workers	- Workplace - Policies & support for health and wellbeing - Physical demands of job - Potential for incidental activity at work - Food availability - Workstation design - Availability of health promotion programs - Distance between workplace and	- Motivation - Nutrition (fruit intake) - Physical Activity - Smoking - Alcohol - General health & wellbeing - Health risk status (increased WC)	- Age - Sex - Education - Socio-economic status - Ethnicity

Key limitations

- Limited variability in education
- No controls
- Questionnaires were self-reported
- No objective physical activity assessment prior to intervention
- Restricted nutrition questions

MONASH University

Summary

The strongest predictors of reduction in waist circumference after participation in the GCC were:

- Not meeting healthy guidelines for waist circumference
- Having a tertiary education
- But significant interactions between

To improve the success of such programs it will be important to explore:

- How benefits can be extended to all those at risk
- The role of the workplace in achieved benefits

Acknowledgements

- o Margaret Brand, Maximilian de Courten & Jagath Amarasekera
- o Sponsors – Simply Gifts, Re-Creation Health Clubs, Athlete's Foot, Snowgoose, Fruit@Work, Fruitbox, Heinz, Nippy's & Carmen's.
- o the Heart Disease and Diabetes Prevention (HDDP) Centre and the Australian Research Council (ARC) Linkage grant LP0989603 for partially funding this study.
- o Anna Peteers is funded by a VicHealth Public Health Fellowship.
- o We would particularly like to thank all the participants and workplaces in the study.

References

WHO. 2004. Obesity: preventing and managing the global epidemic.
 Bellew, B. 2008. Primary prevention of chronic disease in Australia through interventions in the workplace setting, Victorian Government Department of Human Services

Methods

- Self-reported questionnaire includes
 - Demographics
 - Behavioural measures (eg. physical activity, diet)
 - Psycho-social measures (eg. quality of life, locus of control)
- Physical Measures
 - Blood pressure, weight, height, waist and hip circumference
- Biomedical measurements
 - Fasting glucose, cholesterol and triglycerides

Composite risk equations

Diabetes (5 years)

The Australian Type 2 Diabetes Risk Assessment Tool (AUSDRISK)

Baker IDI Heart and Diabetes Institute, 2008.

<http://www.health.gov.au/internet/main/publishing.nsf/Content/PreventionofType2DiabetesProgram-RiskAssessmentTool+>

Age	Medication for blood pressure Tobacco smoking Vegetable and fruit intake Physical activity Waist measurement
Sex	
Ethnicity	
Country of Birth	
Family history of Diabetes	
History of high blood glucose	

Results: Stratification

	Univariate analyses	Multivariate analyses				
		Overall	Male	Female	40+ years	Tertiary educated
Age (years)						
Sex						
Tertiary education	+	+	+	+	+	
Socio-economic Status (SEIFA) the GCC prior to the 2008 Event			-		- +	-
Reason for participation in the GCC 2008 Event						
Smoking				-		
Sedentary behaviour			+			
Physical Activity						
Waist circumference	-	-	-	-	-	-

Results: Stratification

	Univariate analyses	Multivariate analyses			
		Overall	Baseline waist circumference NOT meeting guidelines	Physical activity meeting guidelines	Physical activity NOT meeting guidelines
Age (years)					
Sex					
Tertiary education	+	+		+	
Socio-economic Status (SEIFA) the GCC prior to the 2008 Event			- +	- +	
Reason for participation in the GCC 2008 Event				-	
Smoking					-
Sedentary behaviour					
Physical Activity					
Waist circumference	-	-	-	-	-