

Do text messages influence those insufficiently active?



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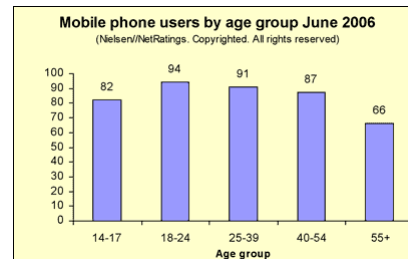
Health promotion currently using text messaging

- **Bulimia Nervosa**
 - Bauer, Percevic, Okon, Meermann and Kordy 2003
- **Smoking cessation**
 - Bramley, Riddell, Whittaker, Corbett, Lin, Wills, Jones and Rodgers 2005
- **Diabetes**
 - Franklin, Waller, Pagliari and Greene 2006
- **Weight control**
 - Joo and Kim 2007
 - Prompting (Lombard, Lombard and Winnett 1995)
- **Physical activity (PA)**

Background- what do we know?

- Mobile phones don't require individuals in a fixed location
 - increases accessibility (Fortunati 2002)
- Mobile phone ownership is on the increase (stats.govt.nz)
- US Pew Internet survey 2007
 - 26% said they could not live without their phone
 - 45% said they would miss their phone if it was no longer in their possession
 - 67% of 18-29 year olds stated they would always leave their cell phone on

Australian statistics



Rationale for examining physical activity levels

- Globally, >60% of individuals do not meet **recommendations** for suitable PA levels which would generate health benefits
- Research on PA and text message influence has so far only investigated adolescence or clinical samples
- Research of university students' PA behaviour has received insufficient attention (Keating, Guan, Piñero & Bridges 2005)
 - New Zealand: Sinclair, Hamlin and Steel 2005
 - Focused on first year students only
 - Only **40%** meet PA guidelines
 - Students found to significantly decrease PA levels from final year of high school to university first year.

Health promotion currently using text messaging for physical activity

- **Physical activity**
- Research uses text messages to compliment interventions
 - Hurling *et al.* 2006
 - Newton, Wiltshire and Elley 2009
 - Bauer, de Niet, Timman and Kordy (working manuscript, 2010)
- **Prestwich, Perugini and Hurling 2009**
- **Sirriyeh, Lawton and Ward (working manuscript, 2010)**

Present study

- Research gap:
 - Past research has looked at total minutes and has not examined the frequency of days active
 - Why is the frequency of days important?
 - Bone density (young adults)
 - Offset calorie intake
 - Sustain health benefits

Present study

- The Aim of the Present Study
 - Find out if university students can be influenced by text message to increase frequency of days active and total PA minutes
 - Is it of use for those insufficiently active at baseline?
- Overview of the study:
 - Sample of students recruited for four week study on PA. They received daily text messages and recorded their PA in an online survey.

Health promotion currently using text messaging for physical activity

- Hypothesis
 - Daily text messaged PA information will influence PA levels of those insufficiently active

Design: longitudinal field experiment

- Pre-test
 - Messages created from multiple sources (NZ Ministry of Health etc) and determined as relevant by 20 students
- EXAMPLE:
 - 5+ days a wk, 30 mins a day of moderate intensity physical activity is recommendd
- Recruitment of participants (n=154)
 - Recruited in the union, bulletin, critic, posters
 - Told: Participants invited to take part in a study on PA
 - Restrictions
 - Over 18
 - No health condition to prevent exercise

Design: longitudinal field experiment

- Study
 - 2 phases
 - Phase one: demographic and baseline physical activity levels collected (**one week**)
 - Phase two: treatment stage (**three weeks**) with daily exposure to informative text messages about physical activity
- EXAMPLE:
 - 5+ days a wk, 30 mins a day of moderate intensity physical activity is recommendd

Design: longitudinal field experiment

- Measures
 - Measurement of PA
 - International Physical Activity Questionnaire (IPAQ)
 - Self report
- Variables created
 - Participants categorised as active or insufficiently active
 - Active: ≥ 150 total minutes of PA during baseline
 - Insufficiently active: < 150 total minutes of PA during baseline
- Variables created in response to treatment

Categorised as:

 - Increased PA during any week of treatment (compared to baseline PA levels) or not
 - Increased days during any week of treatment (compared to baseline days active) or not

Results: Increase in PA minutes during treatment stage

Analysis: Cross-tabulations and chi square

	Insufficiently active at baseline (n=51)	Active at baseline (n=103)	Significance
Did not increase PA during the treatment stage	27.5% (14)	42.7% (44)	.066
Increased PA during the treatment stage	72.5% (37)	57.3% (59)	

$\chi^2=3.387$, $df=1$, $p=.066$

Results: Increase in days physically active during treatment stage

	Insufficiently active at baseline (n=51)	Active at baseline (n=103)	Significance
Did not increase in days of PA during the treatment stage	31.4% (16)	54.4% (56)	.007
Did increase days of PA during the treatment stage	68.6% (35)	45.6% (47)	

$\chi^2=7.246$, $df=1$, $p=.007$

1 day= 10 minutes minimum of vigorous or moderate intensity physical activity

Discussion & limitations

- This study found daily exposure to text messages influenced the adoption of days physically active
 - Total PA minutes were marginally not sig. different but frequency of days active sig increased
- Highlighted the effectiveness of the intervention for those insufficiently active to increase PA
- Demonstrated the influence of text messages as a health intervention tool
- Findings are consistent with previous research (Sirriyeh, Lawton & Ward 2010)
- Limitations: No 6 month follow up

Questions?



Additional Results: Increase in PA minutes by a minimum of 10% during treatment

	Insufficiently active at baseline (n=51)	Active at baseline (n=103)	Significance
Did not increase PA by 10% during the treatment stage	31.4% (16)	50.5% (52)	.025
Increased PA by 10% during the treatment stage	68.6% (35)	49.5% (51)	

$\chi^2=5.053$, $df=1$, $p=.025$

Additional Results: Number of weeks participants increased in PA minutes by a minimum of 10% during treatment

	Insufficiently active at baseline (n=51)	Active at baseline (n=103)	Significance
Did not increase PA by 10% during the treatment stage	31.4% (16)	50.5% (52)	.021
Increased PA by 10% week one during treatment	17.6% (9)	21.4% (22)	
Increased PA by 10% two weeks during treatment	19.6% (10)	15.5% (16)	
Increased PA by 10% three weeks during treatment	31.4% (16)	12.6% (13)	$\chi^2=9.760$, df=1, p=.021

Sample characteristics

N=154	Active at baseline (n=103)	Insufficiently active at baseline (n=51)
Sex (male/ female %)	26.2/73.8	21.6/78.4
Age (18-20/ 21-23/ 24-26/ 27-30/ 31+ %)	61.1/ 24.3/ 4.8/ 4.9/ 5	49/ 27.4/ 15.7/ 2/ 6
Average number of days physically active per week		
Week 1	5.13	2.67
Week 2	5.09	3.20
Week 3	4.73	2.92
Week 4	4.75	3.31
Average total minutes of PA per week		
Week 1	359.61	70.59
Week 2	306.68	121.57
Week 3	289.62	106.71
Week 4	276.81	110.35