

## The CONVERGI Study.

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**AIM:** The aim of our study was to evaluate the efficacy of mobile phone SMS in promoting correct behaviours, compared to more traditional ways of communication.

The widespread use of mobile phone among younger people could provide a new cost-effective tool to disseminate information on healthy lifestyle and to encourage modifications. This study evaluated the efficacy of SMS in promoting correct behaviours and improving metabolic health. Need to explore between boys and girls regarding efficacy of structured SMS texts.

**METHODS:** 430 boys and girls, aged 14-17 years, from two high schools in Campobasso (Italy), were assigned to either intervention or control according to their home school. At baseline, all students received biometric evaluations and answered a questionnaire on lifestyle and a one-week food frequency recall. Conferences and meeting with experts were organized in both schools to enhance knowledge and understanding correct lifestyles. Both groups received nine different SMSs, one every three weeks for one year. SMSs sent to the intervention group contained specific news and messages about healthy behaviour, while those sent to the control group contained scientific news. At the end of the intervention period, a follow up evaluation was carried on. The KIDMED index based on a 16-question test was used to evaluate the Mediterranean quality of the diet.

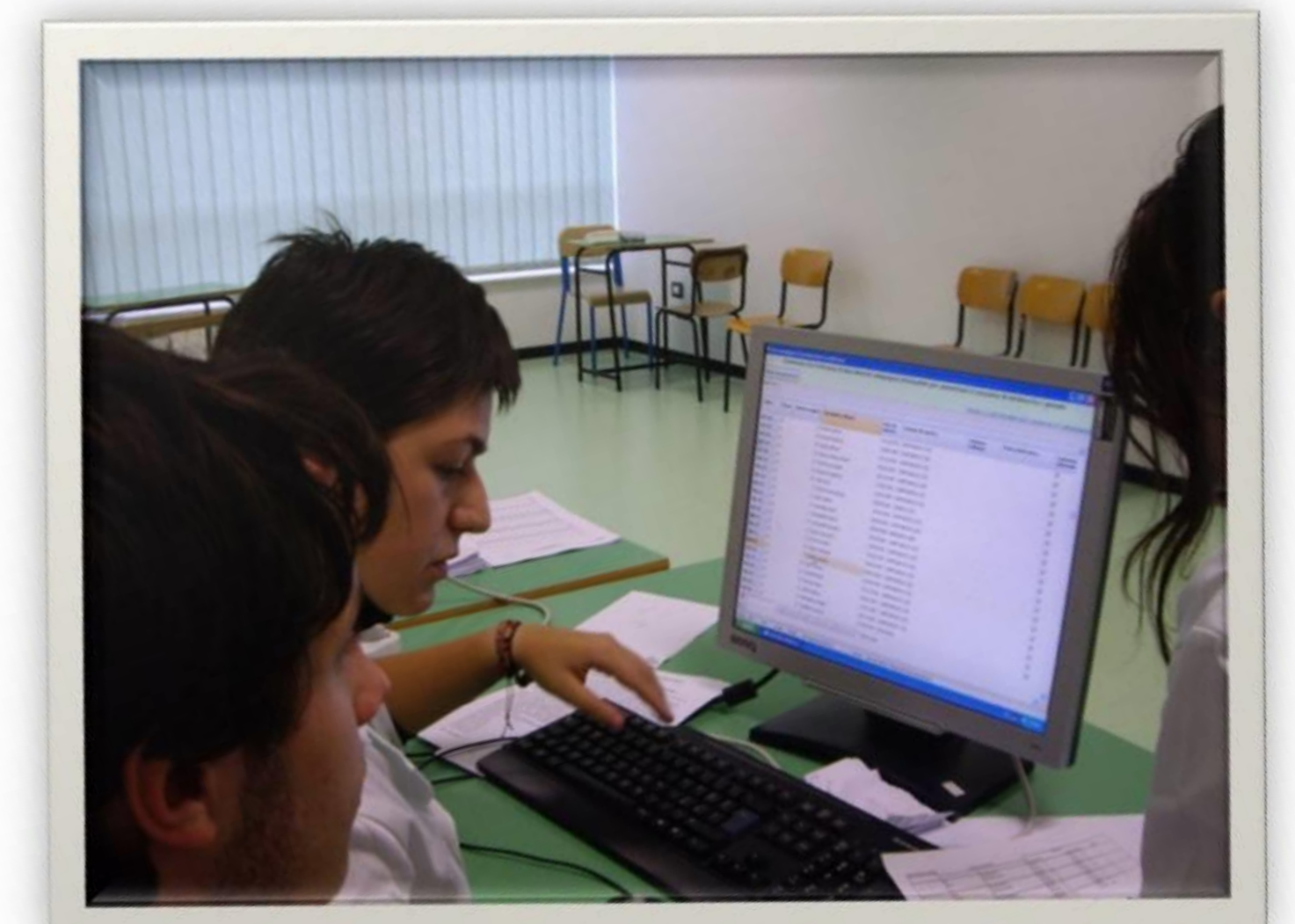
**RESULTS:** Both groups showed an increase in all anthropometric parameters after one year. The increase in waist circumference was significantly lower in the SMS group as compared to the control one, in both girls and boys (2.58 cm (0.99 to 4.16) in controls vs (0.24 cm (-0.99 to 1.48) in SMS, p<0.001 in girls and 2.14 cm (0.35 to 3.94) vs -0.47 cm (-2.36 to 1.42) in boys, p<0.0002, after adjustment for age and baseline levels). Similar results were observed in girls, but not in boys, for hip circumference (2.77 cm (1.69 to 3.86) vs 0.24 cm (-1.32 to 1.79), p<0.06). No significant difference was observed neither in physical activity nor in food frequency consumption.



Table 1a – Anthropometric parameters – Girls											
	CONTROL SMS N=152					INTERVENTION SMS N=119					
	Baseline		Follow up		Delta	Baseline		Follow up		Delta	Delta P
	Mean	SD	Mean	SD	Mean (95% c.i.)	Mean	SD	Mean	SD	Mean (95% c.i.)	
Age (years)	15.65	0.92				15.25	0.9				
Weight (Kg)	59.03	11.36	60.24	11.09	1.21 (0.60 to 1.83)	55.19	9.21	56.97	9.55	1.78 (0.93 to 2.64)	0.71
Waist Circumference (cm)	76.69	10.15	79.27	11.3	2.58 (0.99 to 4.16)	72.77	8.47	73.01	7.26	0.24 (-0.99 to 1.48)	0.002
Hip circumference (cm)	93.54	9.18	96.31	8.26	2.77 (1.69 to 3.86)	91.75	7.57	91.99	9.51	0.24 (-1.32 to 1.79)	0.06
BMI	23.23	3.9	23.59	3.77	0.36 (0.13 to 0.59)	21.34	2.81	21.93	3.1	0.59 (0.28 to 0.89)	0.84

Table 1b – Anthropometric parameters – Boys											
	CONTROL SMS N=49					INTERVENTION SMS N=110					
	Baseline		Follow up		Delta	Baseline		Follow up		Delta	Delta P
	Mean	SD	Mean	SD	Mean (95% c.i.)	Mean	SD	Mean	SD	Mean (95% c.i.)	
Age (years)	15.77	0.89				15.4	0.96				
Weight (Kg)	68.06	16.61	70.76	16.69	2.7 (1.5 to 3.9)	63.56	9.15	66.44	8.78	2.88 (1.73 to 4.02)	0.59
Waist Circumference (cm)	80.3	12.16	82.44	11.83	2.14 (0.35 to 3.94)	76.64	11.13	76.17	7.27	-0.47 (-2.36 to 1.42)	0.0002
Hip Circumference (cm)	92.72	10.85	96	10.71	3.28 (1.58 to 4.98)	90.76	7.58	92.06	7.54	1.30 (-0.27 to 2.86)	0.11
BMI	23.03	4.39	23.57	4.45	0.55 (0.18 to 0.92)	21.91	2.87	22.47	2.76	0.56 (0.17 to 0.94)	0.69

Table 2a . Physical activity and Mediterranean Diet Quality Index - girls											
	CONTROL SMS N=152					INTERVENTION SMS N=119					
	Baseline		Follow up		Delta	Baseline		Follow up		Delta	Delta P
	Mean	SD	Mean	SD	Mean (95% CI)	Mean	SD	Mean	SD	Mean (95% CI)	
Physical activity (hr/w)	5.38	4.73	5.20	4.94	-0.18 (-9.69 to 9.94)	5.27	4.55	5.91	4.99	-0.64 (-9.97 to 9.73)	0.67
Kidmed score	3.18	1.72	2.53	1.38	-0.65 (-0.83 to -0.47)	3.41	1.68	2.90	1.5	-0.52 (-0.74 to -0.31)	0.06



**CONCLUSIONS:** Short messages delivered to teenagers through mobile phone may exert a favourable influence on anthropometric parameters. Further research is warranted on the efficacy of this new tool on behaviour and lifestyle. Results suggest interesting hypothesis about gender communication perception. Girls appear to be more likely than boys to receive information with features of paternalism. New studies are necessary to explore gender differences in the type of communication language.

Table 2b. Physical activity and Mediterranean Diet Quality Index - boys											
	CONTROL SMS N=49					INTERVENTION SMS N=110					
	Baseline		Follow up		Delta	Baseline		Follow up		Delta	P
	Mean	SD	Mean	SD	Mean	Mean	SD	Mean	SD	Mean	
Physical activity (hr/w)	7.94	5.51	7.43	5.44	-0.51 (-7.61 to 6.54)	7.25	4.44	7.24	4.74	-0.01 (-8.17 to 8.23)	0.96
Kidmed score	2.94	1.51	2.37	1.44	-0.57 (-0.84 to -0.3)	3.05	1.71	2.51	1.48	-0.54 (-0.78 to -0.29)	0.36