

Reference	Country	Sample Characteristics	Study Design	Description of Intervention	Features of Existing Web-based Social Network	Physical Activity Outcome Measure(s)	Other Measures	Key Findings	Behaviour Change Theory
Al Ayubi et al., 2014 [43]	USA	13 participants 18-65 years Mean age: 32.15 years 76.92% female	4-week, within-subject pre-post design No social interaction: week 1 Social interaction enabled: week 2	<i>Mobile Application</i> Persuasive Social Network for Physical Activity Application (PersonA) (newly developed): Accelerometer to measure physical activity; goal setting; self-monitoring feedback on progress; peer comparison (compare performance with one other person and group average)  <i>Intervention</i> Received PersonA	PersonA links to Facebook: Share physical activity data; post, like, comment on data; communicate	<i>Pre-intervention &amp; 4 weeks</i>  PersonA accelerometer Number of steps	<i>Pre-intervention &amp; 4 weeks</i>  App engagement PersonA recorded minutes of use	<i>Physical activity outcomes</i>  Average number of steps increased from 4202 at baseline (no social interaction) to 6352 steps following the enablement of social interaction ( <i>P</i> -value not reported)  <i>Intervention engagement</i>  The duration of system use increased from 419 minutes at baseline, to 465 minutes in week 2.  Insufficient data to calculate effect sizes	Health Belief Model; Theory of reasoned action/ theory of planned behaviour; Elaboration Likelihood Model; Social Cognitive theory; Social supportive and health link theory; Users and gratification theory; Common bond and common identity theory; Technology Acceptance Model; Unified theory of acceptance and use of technology; Fogg Behavioural Model
Foster et al., 2010 [44]	United Kingdom	10 participants Age range: not specified Mean age: not specified 90% female	21-days within-subject pre-post design, randomised cross-over  Pre-intervention assessments:	<i>Mobile Application</i> Step Matron Application (newly designed): Monitoring of daily steps  <i>Intervention</i> All participants engaged in the two conditions:	Facebook  View each other's step data, make comments and comparisons (rankings table)	<i>Pre-intervention &amp; 5 days</i>  Pedometer Number of steps	<i>Pre-intervention &amp; 5 days</i>  Google Analytics App logins and minutes of use	<i>Physical activity outcomes</i>  Significantly higher number of steps when participants used the social condition (M = 42002, SD = 7040) than the non-social condition (M = 38132.1, SD = 7800) ( <i>P</i> = .01, <i>d</i> = 0.52)	Not reported

		Registered nurses	specific details not provided	<ol style="list-style-type: none"> <li>1. Socially enabled condition Received Step Matron Application; access to Facebook; wore pedometer</li> <li>2. Non-socially enabled condition Received Step Matron Application; wore pedometer</li> </ol>				<i>Intervention engagement</i>  1:46 minutes engaging with app during non-social condition 2:37 minutes engaging with app during social enabled condition	
Hurkmanns et al., 2018 [47]	United Kingdom	102 participants (81 analysed)  18-65 years  Mean age: 45 years (10.35)  69.7% female  Overweight & obese (29 and 34 kg/m <sup>2</sup> )	12-week, 4-group RCT  Pre-intervention assessments: specific details not provided	<i>Mobile Application</i>  Mobile weight loss application (newly developed): Advice on dietary patterns and physical activity; tracking of step count; self-monitoring; information on nutrition and physical activity; links to Facebook group  <i>Intervention Conditions</i>  <ol style="list-style-type: none"> <li>1. Conventional condition; Individualised diet plan from a dietician; individualised physical activity plan; access to a dietician (week 1, 2 &amp; 5); access to a physical activity coach (week 1, 2, 5 &amp; 7)</li> <li>2. App condition;</li> </ol>	Facebook Group	<i>Pre-intervention &amp; 12 weeks</i>  Tri-axial accelerometer (ActiGraph) Time spent in moderate-to-vigorous physical activity (MVPA)		<i>Physical activity outcomes</i>  No significant group by time interaction effects for MVPA ( <i>P</i> -value not reported)	Not reported

				<p>Access to mobile application</p> <p>3. Combination condition; Access to a dietician (week 1); access to a physical activity coach (week 1 &amp; 7); access to mobile weight loss app</p> <p><i>Control Condition</i> Wait list control</p>					
Pope et al., 2018 [46]	USA	<p>10 participants ≥ 21 years</p> <p>Mean age: 45.80 years (10.23)</p> <p>100% female</p> <p>Breast cancer survivors (no contraindications to physical activity)</p>	<p>10-week, within-subject pre-post design</p> <p>Pre-intervention assessments: 7 days</p> <p>Follow-up assessments: 1-week post-intervention</p>	<p><i>Mobile Application</i></p> <p>MapMyFitness Application (commercially available): Day to day physical activity diary</p> <p><i>Intervention</i></p> <p>MapMyFitness Application; Facebook page</p>	<p>Facebook Page: Education tips based on Social Cognitive Theory posted to page twice a week: Encouraged to post/comment on the page</p>	<p><i>Pre-intervention &amp; follow-up</i></p> <p>Accelerometer (worn on 7 consecutive days)</p> <p>Average daily minutes of sedentary behaviour, light physical activity and MVPA</p>	<p><i>Pre-intervention &amp; follow-up</i></p> <p>Self-efficacy Scale</p> <p>Patient-centred Assessment and Counselling Questionnaire</p> <p>Social support</p> <p>Physical activity enjoyment Scale</p> <p><i>Midpoint and post-intervention</i></p> <p>Intervention engagement</p> <p>Self-report survey of MapMyFitness usage; frequency/duration of use</p>	<p><i>Physical activity outcomes</i></p> <p>Increase in average daily steps; baseline (M = 4930, SD = 1376); post-intervention (M = 6587, SD = 1229) (<math>d = 1.27</math>), and average daily MVPA; baseline (M = 26.8, SD = 13.8); post-intervention (M = 29.4, SD = 22.5) (<math>d = 0.14</math>)</p> <p>Decrease in average daily light physical activity from baseline (M = 94.9, SD = 44.8) to post-intervention (M = 86.7, SD = 64.7) (<math>d = 0.15</math>), and average daily sedentary behaviour; baseline (M = 493.7, SD = 176); post-intervention (M = 381, SD = 265.3) (<math>d = 0.50</math>)</p>	Social Cognitive Theory

							Engagement with Facebook; posts generated and viewed	<p><i>Psychosocial outcomes</i></p> <p>Increases in social support; baseline (M = 2.82, SD = 0.92); post-intervention (M = 3.38, SD = 1.24) (<math>d = 0.51</math>), self-efficacy; baseline (M = 72.89, SD = 29.70); post-intervention (M = 75.28, SD = 25.74) (<math>d = 0.09</math>), and enjoyment to exercise; baseline (M = 3.18, SD = 0.90); post-intervention (M = 3.33, SD = 0.80) (<math>d = 0.13</math>)</p> <p><i>Intervention engagement</i></p> <p>Frequency of MapMyFitness use; midpoint used 3.75 times per week; post-intervention used 4.34 times per week</p> <p>Duration of MayMyFitness use; midpoint used for 39.7minutes per week; post-intervention used 35 minutes per week</p> <p>93% of participants viewed each Facebook post</p>	
Torquati, Kolbe-Alexander et al. 2018 [45]	Australia	47 participants >18 years	3-month, within-subject pre-post design	<i>Mobile Application</i> Smartphone application (newly designed):	Private Facebook group Posting of motivational and inspirational	<i>Pre-intervention, 3 months &amp; follow-up</i>	<i>Pre-intervention, 3 months &amp; follow-up</i> Social support scale	<p><i>Physical activity outcomes</i></p> <p>Significant decrease in percentage of daily time spent in MVPA; baseline (M</p>	Social Cognitive Theory; Goal-setting Theory; Control Theory

		<p>Mean age: 41.4years (12.1)</p> <p>87% female</p> <p>Nurses</p>	<p>Pre-intervention assessments: 7 days</p> <p>Follow-up assessments: 3 months post-intervention</p>	<p>Facilitate physical activity and diet goal-setting</p> <p><i>Intervention</i></p> <p>Smartphone application; Facebook Group; wore Pedometer</p>	<p>quotes to be active/healthy</p>	<p>Accelerometer (worn on 7 consecutive days)</p> <p>MVPA, daily steps, sedentary behaviour and light physical activity</p>	<p>Physical activity self-efficacy scale</p> <p>Intervention engagement</p> <p>Recorded use of intervention content; Viewing of pedometer and application instructions; views of Facebook posts</p>	<p>= 3.0, SD = 1.9); 3 months (M = 2.5, SD = 1.9); 6 months (M = 2.5, SD = 2.0) (<math>P = .01</math>, <math>d = 0.26</math>), and daily average steps; baseline (M = 8496, SD = 2528); 3 months (M = 8136, SD = 2395), 6 months (M = 7629, SD = 2342) (<math>P = .05</math>, <math>d = 0.15</math>)</p> <p>No significant changes in sedentary behaviour (<math>P = .70</math>) or light physical activity (<math>P = .56</math>).</p> <p><i>Psychosocial outcomes</i> (<math>P</math> values not reported)</p> <p>No significant changes in self-efficacy or social support</p> <p><i>Intervention engagement</i></p> <p>68.4% used app less than once a month or never</p> <p>47.4% engaged with Facebook group at least once</p>	
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