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The impact of changing attitudes, norms, and self-efficacy on health-related intentions and behavior: a meta-analysis

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Supplementary Materials

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Table S1

Characteristics and Effect Sizes for Studies Included in the Meta-Analysis

Authors	Health Behavior	Variable(s) Changed					<i>d</i> [95% <i>CI</i>]	
		Att	Norm	Self-Eff	N _c	N _e	Intention	Behavior
Aarons et al. (2000)	Sexual Behavior		X		139	135	0.50 [.26, .74]	0.50 [.26, .74]
Abood, Black, & Feral (2003)	Diet	X			28	25		0.95 [.38, 1.51]
Abood, Black, & Birnbaum (2004)	Diet			X	15	15		-0.25 [-.97, .46]
Albrecht (1992)	Sexual Behavior	X			27	27		0.71 [.16, 1.26]
Anderson (2000)	Breast Self-Examination			X	50	43	0.90 [.47, 1.33]	
Anderson (2009)	Alcohol			X	66	55	1.23 [.84, 1.62]	
Andrews (2004)	Smoking			X	51	52		0.88 [.48, 1.29]

Armitage & Arden (2008)	Smoking		X	X	115	120	0.29 [.033, .55]	0.39 [.14, .66]
Armitage & Reidy (2008)	Blood Donation	X	X	X	36	39	0.63 [.17, 1.09]	
Armitage & Talibudeen (2010)	Sexual Behavior		X		141	138	0.07 [-.17, .31]	
Ash et al. (2006)	Multiple Behaviors			X	57	54		0.73 [.35, 1.11]
Azeredo & Stephens-Stidham (2003)	Multiple Behaviors	X			3150	3150		0.06 [.01, .10]
Baghianimoghadam et al. (2010)	Blood Pressure Self-Monitoring	X			75	75	1.39 [1.03, 1.75]	1.06 [.72, 1.40]
Banchonhattakit, Tanasugarn, Pradipasen, Miner, & Nityasuddhi (2009)	Diet	X			180	195	0.70 [.49, .91]	0.19 [-.01, .39]
Bartholomew et al. (2006)	Asthma Management			X	515	431		0.18 [.05, .31]

Basen-Engquist et al. (2001)	Sexual Behavior			X	2207	2207		0.92 [.89, .98]
Beale & Manstead (1991)	Dental Hygiene	X			74	66	0.23 [-.10, .56]	
Beffa-Negrini (1990)	Diet	X			45	56		0.53 [.13, .93]
Bennett, Young, Nail, Winters-Stone, & Hanson (2008)	Exercise			X	35	37		0.07 [-.39, .54]
Bonner et al. (2002)	Asthma Management	X		X	50	50		0.79 [.38, 1.19]
Booth, Norman, Goyder, Harris, & Campbell (2014)	Chlamydia Screening	X	X		145	108	0.16 [-.09, .41]	0.28 [.03, .53]
Booth-Butterfield & Reger (2004)	Diet	X	X		134	135	0.81 [.56, 1.06]	
Brieger, Delano, Lane, Oladepo, & Oyediran (2001)	Sexual Behavior			X	315	254		0.23 [.06, .39]
Brown, Seraganian, Tremblay, & Annis (2002)	Alcohol			X	61	70		0.19 [-.15, .54]
Bryan, Aiken, & West (1996)	Sexual Behavior	X		X	73	71	0.30 [-.03, .63]	0.15 [-.18, .48]

Burdsall (1994)	Exercise	X		37	36		1.59 [1.06, 2.12]
Catellier & Yang (2013)	Exercise	X		51	49	0.78 [.37, 1.19]	
Champion (1994)	Cancer Screening		X	73	78		0.73 [.40, 1.06]
Chi et al. (2015)	Smoking	X	X	50	50		0.32 [-.07, .71]
Cody & Lee (1990)	Multiple Behaviors	X		108	90	0.26 [-.02, .54]	0.34 [.06, .62]
Conner, Rhodes, Morris, McEachan, & Lawton (2011)	Exercise	X		126	144	0.20 [-.04, .44]	0.40 [.16, .64]
Conner, Rhodes, Morris, McEachan, & Lawton (2011)	Exercise	X		41	48	0.36 [-.06, .78]	0.87 [.43, 1.31]
Cook, Billings, Hersch, Back, & Hendrickson (2007)	Diet	X		209	210		0.12 [-.08, .31]
Cooke, Trebaczyk, Harris, & Wright (2014)	Exercise	X		40	40	1.05 [.58, 1.52]	1.06 [.59, 1.53]
Cramp & Brawley (2009)	Exercise	X	X	26	31		0.73 [.19, 1.27]

Darker, French, Eves, & Sniehotta (2010)	Exercise	x	X	66	64	1.55 [1.16, 1.94]	0.99 [.62, 1.35]
De Bourdeaudhuij & Burg (2000)	Diet	X		72	68	0.13 [-.20, .46]	0.34 [.01, .67]
de Nooijer, Lechman, & de Vries (2002)	Cancer Screening	X		494	496		0.24 [.16, .37]
Denny, Young, Rausch, & Spear (2002)	Sexual Behavior	X	X	222	79	0.28 [.02, .54]	
Denny, Young, Rausch, & Spear (2002)	Sexual Behavior	X		98	97	0.44 [.16, .72]	
Dongbo et al. (2003)	Exercise		X	430	349		0.11 [-.03, .25]
Eldridge et al. (1997)	Sexual Behavior	X		29	29	0.68 [.15, 1.21]	
Ennis, Thain, Boggild, Baker, & Young (2006)	Exercise		X	31	30		1.22 [.68, 1.78]
Epton & Harris (2008)	Diet		X	46	41	0.34 [-.08, .76]	0.43 [.003, .85]
Essien et al. (2011)	Sexual Behavior	X		160	152	0.64 [.41, .87]	0.30 [.08, .52]
Evans, Beeken, Steptoe, & Wardle (2011)	Testicular Self-Examination	X	X	94	104	0.29 [.01, .57]	

Fang, Ma, Tan, & Chi (2007)	Cancer Screening	X	X	X	52	50		1.65 [1.19, 2.09]
Fernandez et al. (2009)	Cancer Screening	X		X	354	353		0.13 [-.02, .27]
French, Stevenson, & Michie (2012)	Exercise			X	10	12	0.66 [-.20, 1.52]	0.45 [-.34, 1.24]
Fink (2008)	Dental Hygiene	X			64	64	0.62 [.27, .98]	
Fischl et al. (2010)	Sexual Behavior	X			42	45	0.41 [-.02, .84]	0.40 [-.02, .83]
Folta et al. (2009)	Multiple Behaviors			X	55	30		0.97 [.50, 1.44]
Fritz (2003)	Smoking			X	61	60		0.30 [-.06, .66]
Fuemmeler et al. (2006)	Diet	X			470	285		0.31 [.16, .45]
Gifford, Laurent, Gonzales, Chesney, & Lorig (1998)	HIV/AIDS Self-Management		X	X	25	33		0.40 [-.13, .93]

Guillaumie, Godin, Manderscheid, Spitz, & Muller (2012)	Diet			X	36	28	0.22 [-.28, .72]	0.00 [-.49, .49]
Gutschall (2006)	Diabetes Self- Management	X		X	29	35		-0.37 [-.87, .13]
Halvari & Halvari (2006)	Dental Hygiene	X		X	44	42		1.15 [.69, 1.61]
Hardeman, Kinmounth, Michie, & Sutton (2009)	Exercise	X		X	244	121	0.50 [.28, .72]	0.02 [-.19, .24]
Harvey et al. (2009)	Sexual Behavior			X	212	212		0.14 [-.05, .33]
Hewitt, Denman, Hayes, Pearson, & Wallbanks (2001)	Sun Protection	X	X		125	104	0.84 [.57, 1.11]	
Hill & Abraham (2007)	Sexual Behavior	X	X	X	238	166	0.47 [.27, .67]	-0.30 [-.49, -.10]
Hill, Abraham, & Wright (2007)	Exercise	X		X	131	128	0.72 [.47, .97]	0.24 [-.004, .48]
Hillhouse & Turrise (2002)	Sun Protection	X	X		74	73	0.61 [.28, .94]	0.35 [.02, .68]
Hillhouse, Turrise, Stapleton, & Robinson (2008)	Sun Protection	X			200	230	0.45 [.26, .64]	0.31 [.12, .50]

Hooper, Baker, & Robinson (2014)	Smoking	X		55	53		.24 [-.14, .62]
Huang, Li, & Wang (2009)	Asthma Management		X	49	50		2.44 [1.92, 2.96]
Hughes et al. (2006)	Exercise		X	58	32		0.67 [.23, 1.11]
Inauen, Tobias, & Mosler (2014)	Diet	X	X	79	34	0.61 [.20, 1.02]	1.02 [.60, 1.44]
Irvine, Ary, Grove, & Gilfillan-Morton (2004)	Diet	X	X	233	251	0.33 [.15, .51]	0.35 [.17, .53]
Jackson (1997)	Sun Protection	X	X	73	65	0.63 [.29, .97]	0.37 [.03, .71]
Jemmot, Jemmot, Fong, & McCaffree (1999)	Sexual Behavior	X	X	249	210	0.22 [.04, .40]	0.26 [.08, .44]
Jessop, Sparks, Buckland, Harris, & Churchill (2014)	Exercise	X		47	73	0.06 [.31, .43]	0.32 [-.10, .74]
Jung, Ginis, Phillips, & Lordon (2011)	Diet		X	51	47		0.81 [.40, 1.22]

Kaljee et al. (2005)	Sexual Behavior	X		240	240	0.16 [-.02, .34]	
Kelley & Abraham (2004)	Diet		X	100	101	0.49 [.21, .77]	0.53 [.25, .81]
Kinsler, Sneed, Morisky, & Ang (2004)	Sexual Behavior	X		75	75	1.44 [1.08, 1.79]	0.55 [.23, .88]
Kotz, Huibers, West, Wesseling, & van Schayck (2009)	Smoking	X	X	116	112		0.28 [.02, .54]
Kreausukon, Gellert, & Schwarzer (2012)	Diet		X	59	55	0.63 [.25, 1.01]	0.50 [.13, .87]
Kulesza, McVay, Larimer, & Copeland (2013)	Alcohol		X	81	98		0.31 [.01, .61]
Lawatsch (1990)	Diet	X		35	34		0.73 [.24, 1.21]
Lawrence, Wilson, Eldridge, Brasfield, & O'Bannon (2001)	Sexual Behavior	X	X	111	111	0.48 [.21, .75]	
Lerman et al. (1997)	BRCA1 Gene Screening	X		122	164	0.16 [-.08, .39]	
Lin & Effken (2010)	Cancer Screening	X		64	64	0.49 [.14, .84]	

Long & Stevens (2004)	Diet		X	63	58		0.16 [-.19, .52]
Lorig, Gonzalez, Ritter (1999)	Exercise		X	189	97		0.24 [-.01, .49]
Lorig, Ritter, Villa, & Armas (2009)	Multiple Behaviors		X	161	133		0.33 [.09, .56]
Lorig et al. (2010)	Exercise		X	209	238		0.10 [-.08, .29]
Lubans & Sylva (2009)	Exercise		X	38	40		0.92 [.45, 1.39]
Luszczynska (2004)	Breast Self-Examination	X	X	244	173	0.51 [.31, .71]	0.37 [.17, .57]
Magee, Stuber, & Schmutte (2008)	Multiple Behaviors		X	53	31		0.58 [.13, 1.03]
Malow et al. (2009)	Sexual Behavior	X	X	116	87	0.27 [-.01, .55]	
Manne et al. (2013)	Cancer Screening		X	193	191	0.27 [.07, .47]	0.26 [.06, .46]
McClendon & Prentice-Dunn (2001)	Sun Protection	X	X	28	30	1.00 [.45, 1.55]	
Mejia (2002)	Diet		X	82	72		0.42 [.10, .74]

Mesters, Meertens, Kok, & Parcel (1994)	Asthma Management	X		X	31	32		0.96 [.44, 1.48]
Milne, Orbell, & Sheeran (2002)	Exercise	X		X	93	79	0.72 [.41, 1.03]	0.11 [-.19, .41]
Milton & Mullan (2012)	Food Safety	X	X	X	15	15	0.05 [-.67, .77]	1.06 [.30, 1.82]
Murru & Ginis (2010)	Exercise			X	37	15		0.69 [.08, 1.30]
Niedermann et al. (2011)	Arthritis Management			X	26	27		0.67 [.12, 1.22]
The NIMH Multisite HIV Prevention Trial Group (2001)	Sexual Behavior	X		X	1473	1453		0.41 [.34, .48]
Noel-Weiss, Rupp, Cragg, Bassett, & Woodend (2006)	Breastfeeding			X	41	39		0.20 [-.24, .64]
Norr, Tlou, & Moeti (2004)	Sexual Behavior	X		X	207	71		0.36 [.09, .63]
O'Leary, Jemmott, Goodhart, & Gebelt (1996)	Sexual Behavior			X	205	97		0.18 [-.06, .42]
Ornes (2006)	Exercise			X	53	59		0.93 [.54, 1.32]

Park, Chang, & Chung (2005)	Cancer Screening	X	X	48	48	0.61 [.20, 1.02]	
Parker, Stradling, & Manstead (1996)	Driving Safety		X	45	50	0.11 [-.29, .51]	
Peng (2006)	Diet	X	X	20	20	1.59 [.88, 2.30]	
Peng (2006)	Diet	X	X	40	40	0.48 [.034, .93]	
Peters (1995)	Vaccination	X	X	38	37	0.67 [.21, 1.14]	0.63 [.17, 1.09]
Pijl et al. (2009)	Diabetes Care	X	X	46	47	-0.06 [-.45, .33]	0.43 [.02, .84]
Pointer (1992)	Alcohol	X	X	81	80	0.27 [-.04, .58]	
Prado (2008)	Diet	X		147	116		0.37 [.13, .62]
Prestwich, Ayres, & Lawton (2008)	Diet	X		92	83	0.28 [.01, .55]	0.21 [-.09, .51]
Put, Van den Bergh, Lemaigre, Demedts, & Verleden (2003)	Asthma Management	X	X	12	11		0.67 [-.17, 1.51]

Quine, Rutter, & Arnold (2001)	Wearing Protective Gear			X	48	49	0.44 [.04, .84]	0.74 [.33, 1.16]
Ranby et al. (2009)	Multiple Behaviors	X		X	406	411	0.17 [.03, .31]	0.6 [.46, .74]
Reid & Aiken (2013)	Sun Protection	X	X		76	81	0.35 [.04, .67]	0.21 [-.10, .52]
Rennie, Harris, & Webb (2014)	Blood Donation			X	15	19	0.90 [.19, 1.61]	
Rennie, Harris, & Webb (2014)	Smoking			X	15	14	1.32 [.52, 2.12]	
Resnicow et al. (2004)	Diet			X	427	427		0.29 [.16, .43]
Reyna & Mills (2014)	Sexual Behavior			X	203	279	0.03 [-.25, .31]	0.11 [-.07, .29]

Rhodes, Bookstein, Aaronson, Mercer, & Orringer (1996)	Diet			X	45	48		0.65 [.23, 1.07]
Richards, Bartlett, Wong, Malouff, & Grunstein (2007)	Apnea Management			X	50	50		1.09 [.67, 1.51]
Roffman et al. (1998)	Sexual Behavior			X	77	82		0.31 [-.01, .62]
Ryser (2004)	Breastfeeding	X		X	26	28	1.04 [.47, 1.61]	0.94 [.38, 1.50]
Salimzadeh, Eftekhari, Majdzadeh, Montazeri, & Delavari (2014)	Cancer Screening		X	X	170	143	2.22 [1.94, 2.50]	1.52 [1.27, 1.77]
Sanderson & Jemmott (1996)	Sexual Behavior	X	X	X	88	48	0.34 [-.01, .69]	
Schaalma et al. (1996)	Sexual Behavior	X		X	1215	1215	0.08 [.00, .16]	0.04 [-.04, .12]
Schlickau (2005)	Breastfeeding			X	44	42		0.81 [.37, 1.25]
Schmiege (2005)	Diet	X		X	101	101	0.39 [.11, .67]	0.30 [.02, .58]

Schmiege, Broaddus, Levin, & Bryan (2009)	Sexual Behavior	X		X	165	162	0.32 [.10, .54]	0.32 [.09, .53]
Schnoll & Zimmerman (2001)	Diet			X	29	26		0.97 [.42, 1.53]
Seymour, Hughes, Campbell, Huber, & Desai (2009)	Exercise			X	93	129		0.16 [-.11, .43]
Shi, Ostwald, & Wang (2010)	Diabetes Management			X	77	80		1.15 [.81, 1.49]
Siero, Broer, Bemelmans, & Meyboom-de Jong (2000)	Diet	X			35	149	0.31 [-.06, .68]	0.46 [.09, .83]
Sikkema, Winett, & Lombard (1995)	Multiple Behaviors			X	22	21		0.72 [.10, 1.34]
Simon, et al. (2004)	Exercise			X	256	231	0.23 [.05, .41]	0.51 [.33, .69]
Smith et al. (2008)	Wearing Protective Gear			X	53	58	1.12 [.72, 1.52]	
Smith (2009)	Multiple Behaviors			X	45	45		0.30 [-.11, .72]

Sniehotta (2009)	Exercise	X	X	X	290	289	0.02 [-.14, .18]	0.01 [-.15, .18]
Song, Kim, Kwon, & Jung (2013)	Smoking	X			15	15	0.15 [-.57, .87]	
Sun, Guo, Wang, & Sun (2007)	Diet	X	X		93	93	0.70 [.40, .99]	0.49 [.20, .79]
Taymoori et al. (2008)	Exercise	X		X	55	52		0.56 [.17, .95]
Teixeira et al. (2010)	Exercise	X		X	115	93		0.84 [.56, 1.13]
Toobert et al. (2011)	Diabetes Management			X	142	138		0.17 [-.07, .41]
Van Sluijs, Van Poppel, Twisk, Brug, & Van Mechelen (2005)	Exercise			X	142	163		-0.14 [-.37, .09]
Wall, Severson, Andrews, Lichtenstein, & Zoref (1995)	Smoking	X	X		1356	980		0.29 [.21, .37]
Walter & Vaughan (1993)	Sexual Behavior	X		X	477	390		0.19 [.06, .33]

Watson, Bilton, & Truby (2008)	Diet			X	23	25		0.03 [-.54, .59]
Wilhelmsen, Laberg, & Klepp (1994)	Alcohol	X	X		309	260	0.21 [.05, .38]	0.16 [-.01, .33]
Williams, Herman-Stahl, Calvin, Pemberton, & Bradshaw (2009)	Alcohol	X			686	1470		-0.09 [-.18, -.002]
Wingood et al. (2011)	Sexual Behavior			X	58	58		1.90 [1.47, 2.35]
Woodgate & Brawley (2008)	Exercise			X	27	27	0.64 [.09, 1.19]	
Yardley & Nyman (2007)	Exercise			X	144	136	0.30 [.06, .54]	

Note. Att = attitude; Self-Eff = self-efficacy; N_c = number of participants in the control group; N_e = number of participants in the experimental group; *d* = effect size; 95% *CI* = 95% confidence interval; X indicates that the variable was assessed following the intervention.

Table S2

Meta-Regressions of Effect Sizes for Intentions and Behavior on Changes in Multiple Cognitions

	Intention						Behavior					
	<i>k</i>	% <i>used</i>	B	SE	95% CI	<i>Adj</i> <i>R</i> ²	<i>k</i>	% <i>used</i>	B	SE	95% CI	<i>Adj</i> <i>R</i> ²
Attitudes and norms	29	27.6%	-.067	.152	-.379 to .244	-4.07	27	40.7%	-.298	.124	-.555 to -.041	22.09
Attitudes and self-efficacy	49	53.1%	.066	.100	-.135 to .268	-3.19	64	46.9%	-.091	.093	-.277 to .095	0.25
Norms and self-efficacy	21	42.9%	.131	.237	-.364 to .627	-4.00	24	41.7%	-.088	.177	-.455 to .280	-4.03
Attitudes, norms, and self-efficacy	28	17.9%	-.030	.157	-.354 to .293	-6.03	28	25.0%	-.341	.136	-.620 to -.062	20.84

Note. *k* = number of tests available for analysis; % *used* = percentage of tests coded as belonging to the named category; B = regression coefficient, SE = standard error of the regression coefficient; 95% *CI* = 95% confidence interval for the regression coefficient; *Adj R*² = percentage of heterogeneity explained by the covariate.

Table S3

Meta-Regression of Effect Sizes for Intentions and Behavior on Moderator Variables

	Intention						Behavior					
	<i>k</i>	% <i>used</i>	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>Adj</i> <i>R</i> ²	<i>k</i>	% <i>used</i>	<i>B</i>	<i>SE</i>	95% <i>CI</i>	<i>Adj</i> <i>R</i> ²
Study design/quality												
Journal article	82	91.5%	-.108	.165	-.437 to .221	-1.15	124	88.7%	-.88	.123	-.331 to .155	-.24
Pre-post design	82	80.5%	-.132	.113	-.357 to .094	.41	124	94.4%	-.056	.160	-.372 to .260	-1.00
Covariance analysis	82	14.6%	-.297	.122	-.539 to -.055	7.56	124	14.5%	-.159	.107	-.370 to .053	1.26
Blinding rating	82	n/a	.035	.081	-.127 to .197	-.86	124	n/a	.200	.065	.071 to .329	8.74
Randomization rating	82	n/a	-.013	.056	-.126 to .099	-1.63	124	n/a	.136	.050	.037 to .234	6.79
Matched groups	82	n/a	-.043	.047	-.137 to .051	-.46	124	n/a	.013	.042	-.070 to .095	-1.07
Waitlist control	82	12.2%	.078	.134	-.188 to .344	-1.35	124	14.5%	-.094	.108	-.307 to .120	-.31
Treatment as usual control	82	20.7%	.087	.109	-.131 to .304	-.70	124	31.5%	.094	.081	-.067 to .255	.62
Attrition rating	82	n/a	.006	.036	-.066 to .077	-1.51	124	n/a	.017	.033	-.048 to .083	-.96
Theoretical basis of the intervention												
Use of theory	82	85.4%	-.029	.130	-.287 to .230	-1.62	124	74.2%	.205	.233	-.257 to .667	-.43
TPB	70	34.3%	-.026	.105	-.237 to .184	-1.68	92	21.7%	.042	.099	-.154 to .239	-1.55
SCT	70	14.3%	.062	.143	-.224 to .348	-1.99	92	29.3%	-.006	.090	-.184 to .173	-1.47
HBM	70	7.1%	-.159	.202	-.562 to .245	-.92	92	9.8%	.141	.139	-.135 to .417	.07
TTM	70	5.7%	-.170	.208	-.586 to .246	-.84	92	5.4%	-.052	.176	-.401 to .297	-1.47
Other	70	38.6%	.074	.101	-.129 to .276	-.42	92	33.7%	-.067	.085	-.236 to .102	-.74
Construct Measurement												
Reliability of attitude	45	n/a	.09	.217	-.342 to .531	-3.14	45	n/a	-.014	.251	-.521 to .492	-3.37
Reliability of norm	14	n/a	-.423	.686	-1.919 to 1.071	-5.08	13	n/a	-.513	.614	-1.864 to .838	-2.81
Reliability of self- efficacy	45	n/a	.381	.326	-0.280 to 1.041	1.01	66	n/a	.453	.325	-.197 to 1.103	1.52
Reliability of intention	45	n/a	-.0001	.0001	-.0004 to .0002	-.13						
Reliability of behavior							17	n/a	1.141	.818	-.602 to 2.884	6.74
Objective measure of behavior							124	8.1%	.154	.147	-.137 to .445	.04
Sample Characteristics												
University students	82	39.0%	.023	.135	-.249 to .295	-2.96	124	22.6%	-.028	.092	-.210 to .154	-1.03

General population	82	18.3%	.338	.173	-.010 to .687	10.50	124	17.7%	.120	.098	-.074 to .314	.92
Workplace sample	82	3.7%	-.222	.432	-1.094 to .650	-2.42	124	4%	-.068	.188	-.441 to .305	-1.02
School pupils	82	19.5%	-.187	.174	-.538 to .164	-.09	124	17.7%	.173	.095	-.360 to .014	2.57
Other	82	19.5%	-.127	.171	-.471 to .218	-1.55	124	37.9%	.072	.078	-.083 to .228	-.32
Gender	75	n/a	-.0004	.002	-.004 to .004	-1.69	119	n/a	.0006	.002	-.003 to .004	-.85
Ethnicity	39	n/a	.002	.001	-.0006 to .005	5.24	73	n/a	.002	.001	-.0003 to .005	2.56
Age	71	n/a	.003	.003	-.002 to .009	.93	110	n/a	.003	.002	-.001 to .007	.64
Features of the targeted behavior												
Increase behavior	82	64.6%	.194	.090	.014 to .373	6.25	124	66.1%	.178	.078	.024 to .331	3.36
Decrease behavior	82	25.6%	-.184	.100	-.382 to .014	4.08	124	22.6%	-.233	.087	-.405 to -.061	5.81
Change multiple behaviors	82	9.8%	-.098	.145	-.389 to .191	-.83	124	11.3%	.009	.116	-.221 to .240	-1.16

Note. k = number of tests available for analysis; % *used* = percentage of tests coded as belonging to the named category; B = regression coefficient, SE = standard error of the regression coefficient; 95% CI = 95% confidence interval for the regression coefficient; $Adj R^2$ = percentage of heterogeneity explained by the covariate; *n/a* = not applicable under % *used* because the moderator variable was continuous and all tests were coded for this variable.

Table S4

Effect Sizes for Intentions and Behavior by Target Behavior

	Intentions						Behavior					
	<i>k</i>	<i>N</i>	<i>d</i> ₊	95% <i>CI</i>	<i>Q</i>	<i>I</i> ²	<i>k</i>	<i>N</i>	<i>d</i> ₊	95% <i>CI</i>	<i>Q</i>	<i>I</i> ²
All behaviors	82	18981	.50	.42 to .59	553.14***	85.4	124	47283	.46	.39 to .52	1279.92***	90.4
Sexual behaviors	18	6680	.37	.25 to .50	93.87***	81.9	21	15221	.38	.20 to .55	424.95***	96.0
Diet	15	2747	.50	.37 to .63	35.11***	60.1	26	5438	.39	.30 to .47	30.61	31.4
Exercise	14	3007	.53	.32 to .73	86.90***	85.0	27	5607	.49	.34 to .63	133.35***	85.0
Sun protection	6	1159	.61	.43 to .78	9.72	48.5	4	872	.31	.17 to .44	.11	0
Cancer screening	4	921	.90	-.07 to 1.86	127.64	97.6	6	2647	.73	.30 to 1.16	47.21***	93.6
Alcohol	3	851	.55	.003 to 1.09	22.57***	91.1	4	3035	.11	-.09 to .32	8.51*	76.5
Self-examination	3	708	.53	.25 to .80	5.52	63.8	1	417	.37	.17 to .57		
Smoking	3	294	.52	-.07 to 1.10	6.10*	67.2	7	3231	.35	.23 to .46	8.36	52.2
Donation behaviors	2	109	.71	.32 to 1.10	.39	0	0					
Multiple behaviors	2	1015	.19	.06 to .31	.32	0	6	1568	.37	.12 to .63	23.39***	78.6
Other screening	2	539	.16	-.01 to .33			1	253	.28	.03 to .53		
Parental monitoring behaviors	2	237	.32	.06 to .57	.62	0	1	97	.74	.33 to 1.16	0	
Breastfeeding	1	54	1.04	.47 to 1.61			3	220	.63	.18 to 1.09	5.44	63.3
Blood pressure monitoring	1	150	1.40	1.03 to 1.75			1	150	1.06	.72 to 1.40		
Dental hygiene	1	128	.62	.27 to .98			1	86	1.15	.69 to 1.61		
Diabetes care	1	101	-.06	-.45 to .33			4	594	.36	-.22 to .93	25.53***	92.2
Driving safely	1	95	.11	-.29 to .51			0					
Food safety behavior	1	30	.05	-.67 to .77			1	30	1.06	.30 to 1.82		
Vaccination	1	75	.67	.21 to 1.14			1	75	.63	.17 to 1.09		
Wearing protective gear	1	111	1.12	.72 to 1.52			1	6300	.06	.01 to .10		
Asthma management	0						5	1231	1.00	.21 to 1.80	78.68***	94.9
Apnea management	0						1	100	1.09	.67 to 1.51		
Arthritis management	0						1	53	.67	.12 to 1.22		
HIV/AIDS management	0						1	58	.40	-.13 to .93		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table S5

Impact of Changing Attitudes, Norms, and Self-Efficacy on Intentions and Behavior for Three Categories of Health Behaviors

Variable	Intention					Behavior				
	<i>N</i>	<i>k</i>	<i>d</i> ₊	95% <i>CI</i>	<i>Q</i>	<i>N</i>	<i>k</i>	<i>d</i> ₊	95% <i>CI</i>	<i>Q</i>
<i>Frequent prevention behaviors</i>										
Attitudes	12,517	48	.49	.40 to .59	260.25***	20,890	51	.36	.29 to .44	281.30***
Norms	5,651	14	.36	.21 to .51	78.25***	8,317	15	.27	.13 to .40	100.78***
Self-efficacy	9,483	37	.46	.36 to .56	177.25***	23,356	64	.41	.31 to .50	665.86***
<i>Infrequent prevention behaviors</i>										
Attitudes	1,159	5	.37	.17 to .56	9.68*	2,544	6	.48	.22 to .74	43.06***
Norms	313	1	2.22	1.94 to 2.50		1,020	2	.82	-.55 to 2.19	87.34***
Self-efficacy	1,829	8	.70	.23 to 1.17	156.24***	2,402	8	.68	.31 to 1.04	123.95***
<i>Disease management behaviors</i>										
Attitudes	251	2	.67	-.75 to 2.09	28.87***	501	6	.60	.17 to 1.02	24.68***
Norms		0					0			
Self-efficacy	101	1	-.06	-.45 to .33		2,036	12	.70	.36 to 1.05	121.60***

Note. *N* = sample size; *k* = number of independent tests; *d*₊ = effect size; 95% *CI* = 95% confidence interval; *Q* = homogeneity statistic.

Figure Captions

Figure S1

Flow of Information Through the Phases of the Present Review

Figure S2

*Mediation of the Impact of Attitude, Norm, and Self-Efficacy Change on Health Behaviors by Intention**Note.* * $p < .05$, ** $p < .01$, * $p < .001$.



