

Effects of a Smartphone Addiction/Overuse Intervention Program among University Student: A Systematic Review and Meta-Analysis

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Purpose

❖ To evaluate the effectiveness of smartphone addiction intervention among university students.

Methods

❖ Selection of studies: PICOTS-SD(Participants, Intervention, Comparisons, Outcomes, Timing of outcome measurement, Settings, Study Design)

❖ Search procedures

Articles identified through database search (n=24,210)
CINAHL(n=3,324)
Embase(n=2,314)
MEDLINE(n=11,072)
Pubmed(n=7,220)
RISS(n=156)
NDSL(n=36)
Dbpia(n=39)
National Assembly Library(n=12)
KoreaMed(n=4)
KMbase(n=3)
KSI KISS(n=30)

Articles removed after duplication (n=22,190)

Articles screened on the basis of title and abstract (n=14)

Articles included in qualitative synthesis (n=10)

Articles included in quantitative synthesis (n=6)

Articles excluded for the following reasons :
Same as journal (n=4)

No control group (n=1)
Insufficient data (n=1)
No smartphone addiction (n=2)

<Flow diagram of study selection process>

❖ Quality Assessment: RoBANS(The Risk of Bias Assessment Tool for Non-randomize Studies)-target group selection, confounding variables, exposure measurement, blind assessment, incomplete outcome data, and selective outcome reports, and the low/high/uncertain risk of skewness of each of these areas was evaluated.

Results

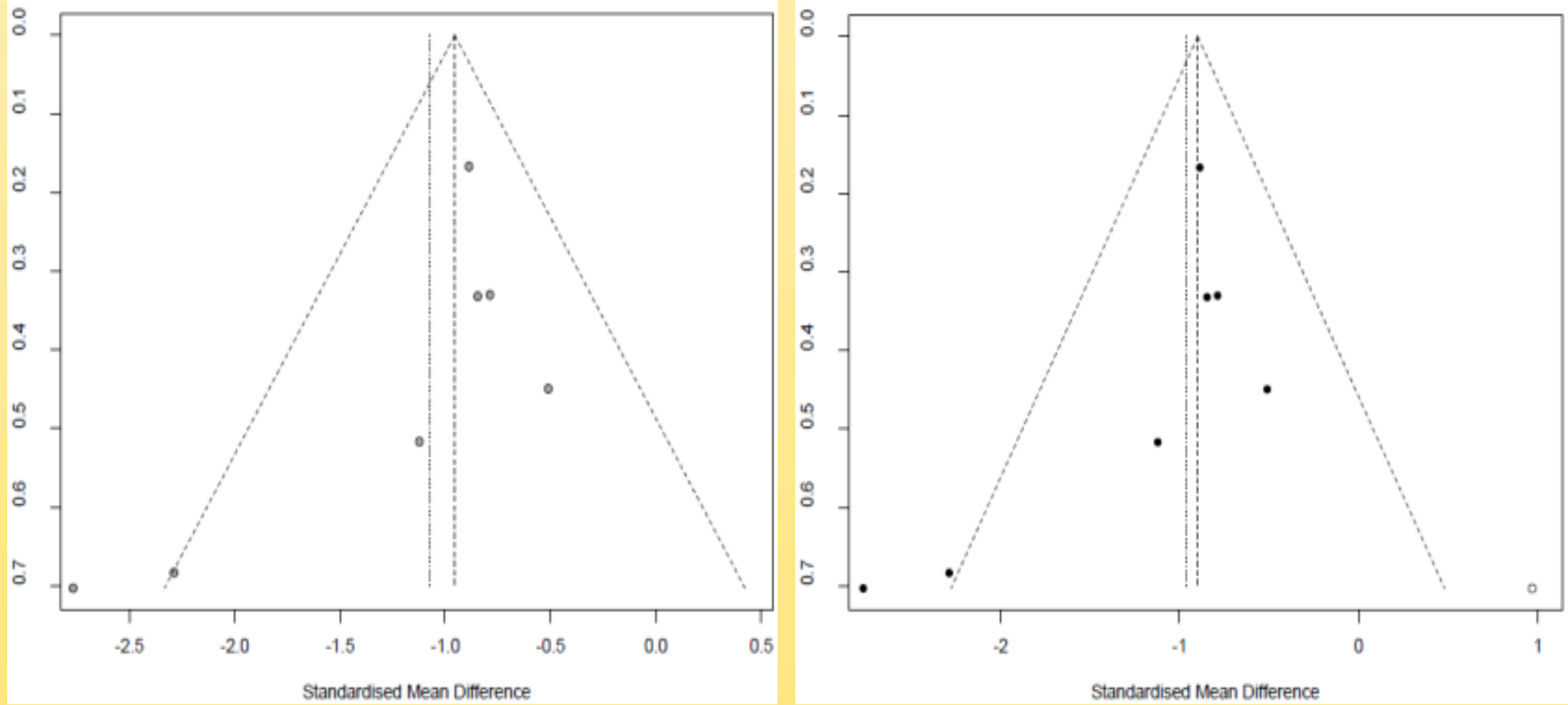
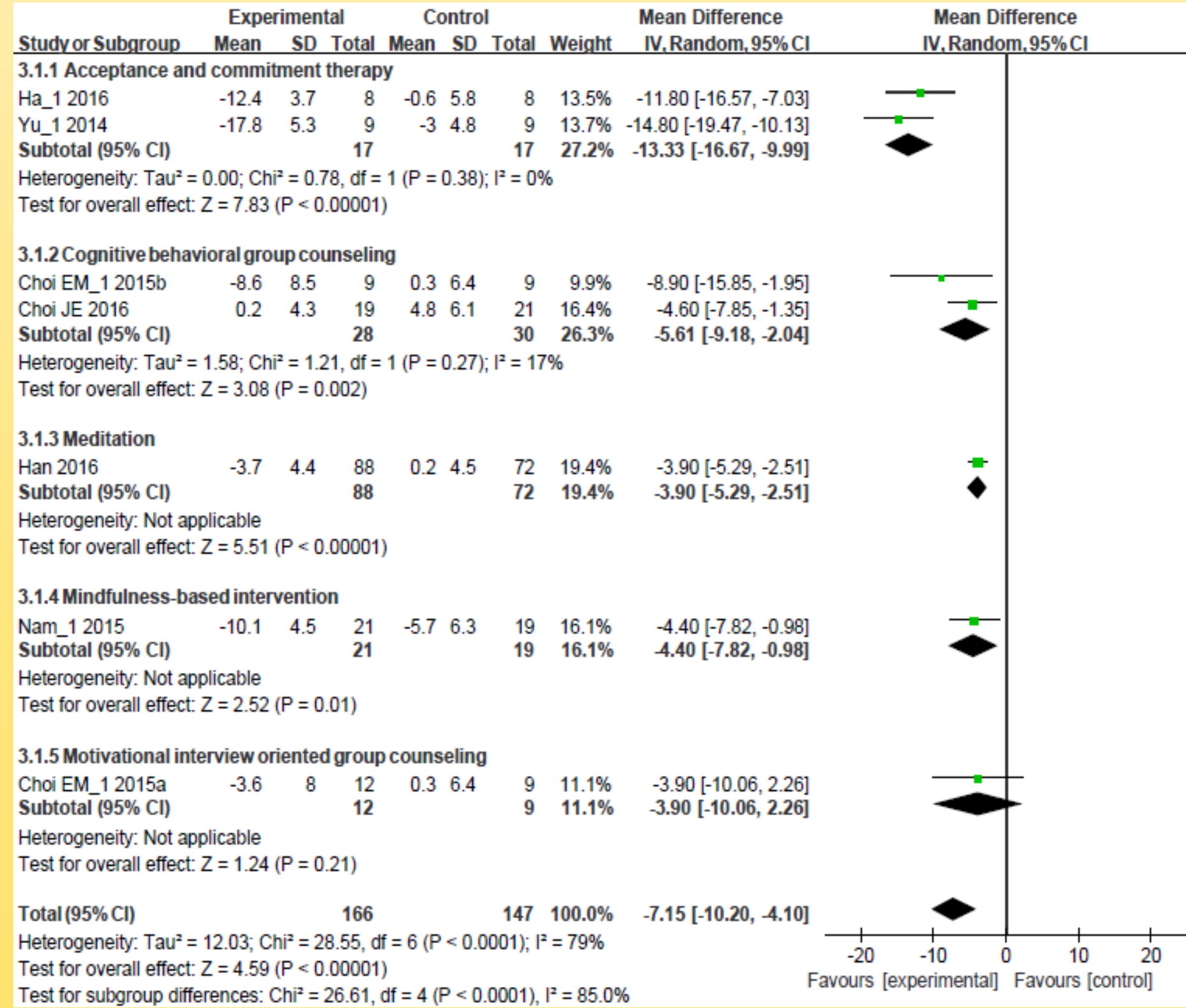
❖ Smartphone addiction intervention significantly reduced smartphone addiction among university students (standardized mean differences= -8.43; 95% CI= -10.98, -0.61).

<Characteristics of Included Studies>

First author Year	Study Design	Total N (eN/cN)	Intervention		Group or individual	Intervention duration & frequency	follow-up check (week)	Source	Outcome variables (instrument)
			approach	type					
Bang, 2016	NRCT	40 (20/20)	Universal	Smart Phone Addiction Management Application	individual	5 days	None	Journal	Smartphone addiction (S-scale) Smartphone usage time Self-regulation Interpersonal problems
Choi, E.M., 2016	NRCT	21 (12/9)	Selective	Motivational Interview Oriented Group Counseling	group	6 weeks once/week 120 minutes/session	4	Journal	Smartphone addiction (S-scale) Depression /Anxiety Impulsiveness /Aggression
	NRCT	18 (9/9)	Selective	Cognitive Behavioral Group Counseling	group	6 weeks once/week 120 minutes/session	4	Journal	Preparedness for change
Choi, H.J., 2016	NRCT	53 (19/34)	Universal	Feedback Intervention	individual	6 weeks	None	Journal	Smartphone addiction (S-scale) Personal behavior Social psychological well-being Impulsiveness
Choi, J.E., 2016	RCT	40 (19/21)	Selective	Cognitive Behavioral Therapy	group	8 weeks once/week 60 minutes/session	None	Doctoral	Smartphone addiction (S-scale) Depression /Impulsiveness Interaction anxiousness
						4 weeks twice/week 90 minutes/session			Smartphone addiction (S-scale) Self-control /Depression Acceptance action
Ha, 2016	NRCT	16 (8/8)	Selective	Acceptance and Commitment Therapy (ACT)	group	5 weeks once/week 150 minutes/session	6	Journal	Smartphone addiction (S-scale) Stress
Han, 2016	NRCT	160 (88/72)	Universal	Meditation	group	1 week 4 times/week 30 minutes/session	None	Master	Smartphone addiction (S-scale) Smartphone using time Working memory Implicit attitude
Kang, 2015	RCT	50 (26/24)	Universal	Mindfulness Meditation	group	5 weeks twice/week 90 minutes/session	None	Master	Depression /Self-control College life adjustment
Lee, 2015	RCT	20 (10/10)	Selective	Integrated Arts Therapy	group	4 weeks once/week 90 minutes/session	2	Master	Smartphone addiction (S-scale) Work and social adjustment Mental health /Self-regulation
						4 weeks twice/week 120 minutes/session			Smartphone addiction (S-scale) Self-control /Anxiety Acceptance action
Nam, 2015	NRCT	40 (21/19)	Selective	Mindfulness-Based Intervention	group	4 weeks twice/week 120 minutes/session	4	Journal	
Yu, 2016	RCT	18 (9/9)	Selective	Acceptance and Commitment Therapy (ACT)	group				

eN=number of experimental group participants; cN=number of control group participants S-scale=Smartphone addiction; NRCT=non randomized controlled trial; RCT= randomized controlled trial

<Effect of smartphone addiction/overuse intervention program on smartphone addiction & funnel plot of effective size>



Conclusion

❖ Smartphone addiction intervention has an effect on improving smartphone addiction.
❖ Limit of study: the small number of articles
❖ Further studies are required to evaluate the effects of smartphone addiction intervention on depression, self-control, and anxiety.