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1 .   (Davenport , 1996) .

(imagery)   .

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(Halter , 1998) .

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(Tusek & Cwynar , 2000) .   ,   ,

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(Sodergren ,   ,

1992) ,   .

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(t   F , p)

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2) (Song, 1998),

3) (+) , (-)

Song(1998)

PC-SAS program

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1995   1 2001   12

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Cohen(Polite & Hungler, 1995

1 15) d .8

, d .5 , d .2

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<Table 1> Characteristics of Studies of the Use of Imagery

Res. No	Researcher (year)	Imagery type	Sample	Sample N exp./con.	Method	Total Duration	frequency/ interval	time required at once	Dependent Variable
1	Kim., J.H (1995)	Behavioral Imagery	Hemodialysis patient	18/18	Individual	8wks	2-3times/wk	19min	stress self-esteem hardiness general Self-efficacy specific Self-efficacy social support quality of life
2	Kim., S.A (1996)	Behavioral Imagery	Pregnant woman	20/18	Individual	2-4wks	1-2times/day	16min	labor pain scale pulse anxiety
3	Jo., M.L. (1997)	Behavioral Imagery	Psychiatric patient	17/21	Individual	4wks	2-3times/wk	19min	depression self-esteem quality of life
4	Kim., H.S. (1997)	Behavioral Imagery	Adolescent	17/18	Individual	9wks	6times/wk	15min	anxiety serum cortisol immunoglobulin
5	Pyun., H.S. (1998)	Behavioral Imagery	Ca. patient	14/17	Individual	5days	2times/day	15min	anxiety nausia/vomiting
6	Yun., J.S. (1998)	Behavioral Imagery	COPD patient	10/10	Individual	4wks	2times/day	30min	dyspnea perception physical symptom psychological symptom
7	Jo., M.L. & Suk., S.J. (1998)	Behavioral Imagery	Psychiatric patient	17/17	Individual	4wks	2-3times/wk	19min	depression serum cortisol
8	Kim., J.H. (1999)	Behavioral Imagery	female university student	18/19	Individual	4wks	2times/wk	Not reported	BP, Pulse, BT pain perception(VAS) anxiety self-esteem general Self-efficacy
9	Kim., H.H. (2000)	Behavioral Imagery	Ca. patient	18/18	Individual	6days	2times/day	15min	depression anxiety
10	Kim., H.J. (2000)	Behavioral Imagery	Nurse	20/20	Individual	10days	2times/day	13min	stress serum cortisol, BP, puls
11	Eum., K.O. (2000)	Behavioral Imagery	patient with coronary artery disease	11/16	Individual	3day	2times/day	13min	snxiety stress
12	Lee., H.K. (2000)	Dynamic Imagery	Alcoholic patient	24/36	Individual	3wks	2times/day	90min	abstinence likelihood depression anxiety
13	Choi., G.Y. (2000)	Dynamic Imagery	Hemodialysis patient	20/23	group	7wks	1times/day	40min	comfort depression stress
14	Suk., M.H. (2001)	Behavioral Imagery	Adolescent	82/82	group	4wks	5times/wk	8min	internal locus of control self-esteem anxiety depression
15	Suk., M.H. & Yun., Y.M. (2001)	Behavioral Imagery	Adolescent	82/83	group	4wks	5times/wk	8min	stress

<Table 1>   .

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(Behavioral   Imagery)   4   .

(Dynamic Imagery)   ,   4   ,

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'   <Table 2>   .

(Guided Imagery)'   .   15

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(Image   Psychotherapy)   .   .

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(imagery)   -0.593   1.991

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.   d = 0.527   Cohen

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,   (p = .000).

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H.H.(2000)

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.   4   d = 0.601   Cohen

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(week)   (day)

(p = .000).

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, (day)   0.058   2.078

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1   1   d = 0.568   Cohen

14   8   90   .

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1   40   (p = .000).

-90   .   4

-0.136

<Table 2> Effect size and Homogeneity of the Dependent Variables

Dependent Variable	Research No.	Scale (Scale development reseacher)	Statistics	Direction	effect size (d)	SD	Weighted mean(d)	Homogeneity test (p)
	4	State Trait Anxiety Scale(Spielberger, 1972)	t=5.89		1.991	0.413		
	5	State Trait Anxiety Scale(Spielberger, 1972)	p= 0.007		0.951	0.379		
	3	Symptom Check List-90-Revision(G.I. Kim., 1978)	t= 5.24		1.700	0.379		
State	8	State Trait Anxiety Scale(Spielberger, 1972)	t= 1.50		0.500	0.339	0.527	0.000
anxiety	9	State Trait Anxiety Scale(Spielberger, 1972)	p= 0.04		-0.593	0.341		
	11	Symptom Check List-90-Revision(G.I. Kim., 1978)	t= 2.12		0.816	0.401		
	12	State Trait Anxiety Scale(Spielberger, 1972)	F= 0.04		-0.052	0.258		
	14	State Trait Anxiety Scale(Spielberger, 1972)	F= 8.49		0.454	0.158		
	3	Symptom Check List-90-Revision(G.I. Kim., 1978)	t= 5.35		1.381	0.287		
	7	Symptom Check List-90-Revision(G.I. Kim., 1978)	t= 5.25		1.856	0.423		
Depression	12	Beck Depression Inventory(Beck, 1967)	F= 0.01		-0.026	0.258	0.601	0.000
	13	Beck Depression Inventory(Beck, 1969)	F= 9.14		0.922	0.321		
	14	CES-D(Radloff,1977)	F= 5.05		0.350	0.157		
	1	Perceived Stress Scale(J. H. Kim.,1995)	F= 0.03		0.058	0.333		
	10	Visual Analogue Scale	t= 6.57		2.078	0.392		
Stress	11	Visual Analogue Scale	t= 0.58		0.223	0.386	0.568	0.000
	15	Perception of Stress Scale(Y.A. Park, 1996)	F= 10.14		0.496	0.158		
	1	Self-esteem Scale(Rosenberg,1971)	F= 22.85		1.593	0.383		
Self-esteem	3	Self-esteem Scale(Rosenberg,1971)	t= 0.42		-0.136	0.325	0.307	0.548
	8	Self-esteem Scale(Rosenberg,1971)	t= 0.104		-0.033	0.329		
	14	Self-esteem Scale(Coopersmith, 1967)	F= 3.06		0.272	0.156		
	2	Physiological measurement	t= 2.96		0.960	0.343		
Pulse rate	8	Physiological measurement	t= 9.73		3.200	0.496	0.977	0.000
	10	Physiological measurement	t= 1.70		0.538	0.322		
	11	Physiological measurement	t= 0.74		0.285	0.387		
Systolic	8	Physiological measurement	t= 1.95		0.641	0.337		
pressure	10	Physiological measurement	t= 1.48		0.468	0.321	0.607	0.830
	11	Physiological measurement	t= 2.01		0.774	0.399		
	4	Physiological measurement	t= 6.15		2.079	0.420		
Cortisol	7	Physiological measurement	t= 2.62		0.899	0.360	1.326	0.093
	10	Physiological measurement	t= 3.83		1.211	0.344		
Pain	2	Visual Analogue Scale	t= 2.38		0.772	0.336	0.208	0.019
perception	8	Visual Analogue Scale	t= 1.034		-0.339	0.331		
Quality	1	Quality of Life Index(Ferrance,1985)	F= 9.32		1.018	0.354	0.934	0.743
of life	3	Quality of Life Scale (Y.J .Noh., 1988)	t= 2.64		0.857	0.339		
General	1	General Self-efficacy Scale (Sherer & Maddux, 1982)	F= 0.417	+	0.216	0.334	0.063	0.520
self-efficacy	8	General Self-efficacy Scale (Sherer & Maddux, 1982)	t= 0.26	-	-0.085	0.329		
Globulin	4	Globulin A	t= 1.95	+	0.659	0.347		
Comfort	13	General Comfort Questionnaire (Kolkaba, 1992)	F= 18.59	+	1.315	0.336		
Hardiness	1	Hardiness Scale(Pollock, 1986)	F= 7.03	-	-0.884	0.349		
Abstinence Likelihood	12	Abstinence Likelihood Inventory (Batkin, 1994)	F= 0.31	-	-0.144	0.259		
Locus of control	14	Multidimentional Health Locus of Control Scale (Wallston et al, 1978)	F= 4.04	+	0.313	0.157		
Body temp	8	Body temp	t= 6.27	-	-2.012	0.407		
Self efficacy of pain	8	Self efficacy Scale(J .H.Kim., 1999)	t= 0.257	-	-0.085	0.329		
Specific Self efficacy	1	Specific Self efficacy Scale(J .H.Kim., 1995)	F= 0.01	+	0.033	0.333		
Social support	1	Perceived Social Support (Weinert,1988)	F= 5.07	+	0.751	0.345		
Dyspnea perception	6	Subject Dyspnea Perception(K.H. Seo., 1990)	Z=-3.67	+	2.725	0.621		

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(p = 0.000).

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0.774 .

d = 0.607 . Kim, H.H.(2000) Spielberger

(p = .830). (p = .185)

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0.899 2.079 (QB = 8.15,

. p = .004), (d = -0.052)

d = 1.326 ,

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, d = .8 (d = 1.589)

(d = 0.934), (d = 1.315), .

(d = 2.725) , (d = -0.144),

(d = -0.884), (d = -2.012), 2)

(d = -0.085) 15 .

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<Table 3> Comparison of effective size according to method of delivery of the intervention

			State anxiety	Depression	Stress	Self-esteem	Pulse rate
Type	Homogeneity test (p)	Behavioral	0.185	0.386			
		Dynamic	-	0.074			
	Weighted mean (d)	Behavioral	0.770	1.589			
		Dynamic	0.052	0.352			
	Difference test		QB = 8.15	QB=17.15			
			p = 0.004	p=0.000			
Interval	Homogeneity test (p)	per week	0.117	0.195	-	0.828	-
		per day	0.386	-	0.519	-	0.412
	Weighted mean (d)	per week	1.270	1.311	0.058	0.087	3.200
		per day	0.560	0.350	0.458	0.272	0.617
	Difference test	per week	QB = 7.61	QB =13.65	QB = 1.21	QB = 1.60	QB = 23.22
		per day	p = 0.006	p = 0.000	p = 0.242	p = 0.206	p = 0.000
Total Duration	Homogeneity test (p)	below 1 week	0.059	NA	-	-	-
		2-4 week	0.041	0.003	-	0.260	0.370
		over 5 week	-	-	-	-	NA
	Weighted mean (d)	below 1 week	0.888		0.223	0.033	0.285
		2-4 week	0.602		0.496	0.196	0.735
		over 5 week	1.191		0.058	1.593	NA
	Difference test		QB = 10.46		QB = 1.62	QB =12.90	QB = 0.97
			p = 0.005		p = 0.445	p = 0.001	p = 0.325
Public vs Patient	Homogeneity test (p)	general person	0.072	-	-		-
		patient	0.242	3.266	1.621		0.196
	Weighted mean (d)	general person	0.625	0.350	2.078		0.538
		patient	0.152	1.311	0.393		0.669
	Difference test		QB = 3.96	QB =13.65	QB = 15.87		QB = 0.10
			p = 0.046	p = 0.000	p = 0.000		p = 0.752
Individual vs Group	Homogeneity test (p)	individual	0.400	0.386	0.5103	0.828	
		group	-	0.110	-	-	
	Weighted mean (d)	individual	1.125	1.589	0.127	0.087	
		group	0.454	0.460	0.496	0.272	
	Difference test		QB = 8.28	QB =13.61	QB = 1.52	QB = 1.60	
			p = 0.003	p = 0.000	p = 0.218	p = 0.206	

- : Not to be analyzed anymore because of only one study

NA : Not Assigned.

.   (QB = 7.61, p = .006).

(p = .000)

(Lee (2000)

p = .000,   p = .008)   (p = .195)

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H.H.(2000)   Lee(2000)   d = 1.311,

(p = .117,   d = 0.350

p = .386)   (QB = 13.65, p = .000)

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d = 1.270   ,   d = 0.560   .

(QB = 23.22,   p = .000),

$(d = 3.200)$ $(d = 0.617)$

, $(d = 0.350)$

. $(QB = 1.21, p = .242)$ $(d = 1.311)$

$(QB = 1.60, p = .206)$

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$(QB = 0.10, p = .752)$.

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2-4 Kim(1996) 9 , 5 Kim(1995) 12

Kim(1997) 3 . Suk(2001) 3 .

$(QB = 8.28, p = .003)$,

, $(QB = 13.61, p = .000)$

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$(QB = 10.46, p = .005)$ 5 $d = 1.125$, $d = 0.454$) ($d = 1.589$,

$d = 1.191$, $d = 0.460$)

1 $d = 0.888$, 2-4 $d = 0.602$

. $(QB = 1.52, p = .218)$

$(QB = 1.60, p = .206)$

$(QB = 12.90, p = .001)$, 5 .

$d = 1.593$

, 2-4 $d = 0.196$.

, 1 $(d = -0.033)$

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$(QB = 1.62, p = .445)$, ,

$(QB = 0.97, p = .325)$ (Choi, 1999).

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$(QB = 3.96, p = .046)$, .

$(QB = 13.65, p = .000)$, $(QB = 15.87,$

$p = .000)$,

. , ($d = 0.625$,

$d = 0.152)$ ($d = 2.078$,

$d = 0.393)$

(Eller, 1999).

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- Abstract -

A Meta-Analysis of the Effects of Imagery

*Oh, Won-Oak * Suk, Min-Hyun **

Purpose: This study was to identify the trends and contents of imagery interventions and to evaluate the effects of imagery interventions by using meta-analysis. Method: The materials used for this study were 15 imagery intervention studies carried out from Jan. 1995 to Dec. 2001. The studies were analyzed and evaluated in different categories: 1) types of dependent variables 2) types of imagery 3) interval of imagery 4) total duration of imagery 5) sample characteristics 6) intervention method. Result: 1) Behavioral imagery was more prevalent than dynamic imagery. There were wide variations in duration, and interval of interventions. Imagery intervention had moderate effects on psychological variables (state of anxiety, depression & and stress etc.) and had moderate to large effects on physiological variable(pulse rate, cortisol etc.). Behavioral imagery had larger effects than dynamic imagery. Imagery applied to the public had larger effect on decreasing the state of anxiety and stress than applied to the patients. But imagery applied to the patients had a larger effect on decreasing depression than applied to the public. The imagery intervention method by using the individual approach had greater effect than group approach method. Conclusion: These results of this study will be used to guide the development of imagery interventions to nursing practice. Also, various types of imagery interventions need to be developed based on the characteristics of nursing practice.

Key words : Imagery, Meta-analysis

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