

Teletherapy versus In-Person Cognitive Training Outcomes During COVID-19

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INTRODUCTION

- The COVID-19 pandemic challenged in-person delivery of cognitive training, so some clinics pivoted to remote delivery
- We compared the outcomes of remote delivery to in-person delivery of LearningRx cognitive training during 2020.

METHODS

- We collected pre and post cognitive test scores from 381 clients ranging in age from 4-70 at 18 cognitive training centers.
- Both groups received ~112 hours of LearningRx cognitive training. Group 1 attended traditional in-person training. Group 2 attended virtual training delivered by a clinician over Zoom.
- We examined between-group differences using MANOVA on change scores. We conducted linear regression analyses to determine if age was a significant predictor of change in either group. Finally, we used paired samples *t* tests to examine the significance of pretest to post-test change within each group.

RESULTS

- No significant differences between groups on any constructs measured
- Significant changes on all constructs for both delivery groups with medium to extra large effect sizes
- In-person change scores narrowly edged out remote scores on all constructs.

DISCUSSION

- Remote delivery of LearningRx cognitive training during COVID-19 was a viable alternative to traditional in-person delivery and shows promise as a method for broadening access to the intervention.

KEY RESULTS:

- No significant differences in outcomes between in-person and remote delivery of LearningRx cognitive training.**
- Significant changes on all cognitive constructs for both delivery methods with robust effect sizes.**

In-Person Cognitive Training



Remote Cognitive Training



Comparison of Standard Score Change by Group

Woodcock Johnson IV Measure	In-Person	Remote	<i>p</i>
Working Memory (WM)	10.0	8.1	.22
Long-term Memory (LTM)	8.8	8.2	.61
Processing Speed (PS)	7.6	6.5	.35
Visual Processing (VP)	7.6	6.7	.49
Auditory Processing (AP)	14.8	12.3	.04
Attention (Attn)	11.4	9.1	.06
Fluid Reasoning (LR)	10.0	9.7	.82
IQ Score	11.7	10.0	.09

DISTRIBUTION OF AGE AND SEX BY GROUP

	In-Person Group	Remote Group
CHILDREN 4-17		
Male	103	109
Female	62	79
Total children	165	188
ADULTS 18-70		
Male	6	8
Female	7	7
Total adults	13	15
TOTAL	178	203

REGRESSION ANALYSIS OF AGE AS A PREDICTOR OF OUTCOMES BY GROUP

	In Person				Remote			
	<i>B</i>	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>B</i>	<i>t</i>	<i>p</i>	<i>R</i> ²
WJ4								
PS	-.01	.09	.92	.007	.04	.26	.79	.018
AP	.006	.06	.96	.000	.18	1.4	.15	.007
VP	.11	1.1	.28	.007	.18	1.5	.12	.012
LR	-.07	.73	.46	.003	-.09	.75	.45	.003
WM	.36	2.9	.004*	.046	-.09	.56	.58	.002
LTM	.10	1.0	.31	.006	.07	.62	.53	.002
Attn	.36	3.2	.002*	.055	.21	1.4	.15	.011
IQ	.19	1.9	.05	.024	.32	2.9	.003*	.047

* Significant at Bonferroni-corrected alpha *p* < .006

MANOVA OF STANDARD SCORE CHANGE

WJ4 Measure	In-Person Mean Change Score (SD)	Remote Mean Change Score (SD)	<i>F</i>	<i>p</i>
WM	10.0 (14.4)	8.1 (15.9)	1.52	.22
LTM	8.8 (11.2)	8.2 (10.6)	0.26	.61
PS	7.6 (10.3)	6.5 (12.1)	0.87	.35
VP	7.6 (11.9)	6.7 (11.1)	0.48	.49
AP	14.8 (12.0)	12.3 (11.5)	4.35	.04
Attn	11.4 (12.0)	9.1 (11.5)	3.51	.06
LR	10.0 (10.7)	9.7 (11.5)	0.05	.82
IQ Score	11.7 (9.8)	10.0 (9.3)	2.93	.09

* Significant at Bonferroni-corrected alpha *p* < .006

T TESTS OF WITHIN GROUP CHANGE

WJ4	In-Person				Remote			
	Pre (SD)	Post (SD)	<i>p</i>	<i>d</i>	Pre (SD)	Post (SD)	<i>p</i>	<i>d</i>
WM	94.6 (15.8)	104.6 (15.4)	.00	.69	92.8 (16.8)	100.9 (16.3)	.00	.51
LTM	99.4 (12.7)	108.2 (13.5)	.00	.78	98.9 (12.9)	107.1 (14.4)	.00	.77
PS	93.2 (14.0)	100.8 (12.5)	.00	.74	91.9 (15.2)	98.4 (15.2)	.00	.54
VP	100.9 (13.8)	108.4 (13.7)	.00	.63	99.2 (14.3)	105.9 (14.1)	.00	.60
AP	89.2 (15.8)	104.1 (15.2)	.00	1.23	88.1 (16.3)	100.3 (15.6)	.00	1.07